

ELECTRIC REFRIGERATION NEWS

The business newspaper of the electric refrigeration industry

VOL. I. No. 21

DETROIT, MICHIGAN, JULY 20, 1927

PRICE FIVE CENTS

PROPOSED SAFETY CODE IN NEW YORK UP FOR HEARING

Fire Department Submits Refrigeration Ordinance to Board of Aldermen

After a period of two years spent in considering the fire and safety hazards of refrigeration, the Fire Department of the City of New York has submitted an ordinance to the Board of Aldermen which amends the code affecting the installation of refrigerating plants, which code has been in effect since 1915. The proposed ordinance was referred to the Committee on General Welfare and came up for a hearing on July 12. At that time it was laid over until the September meeting of the Board, at which time a public hearing will be held.

About a year ago the New York Fire Commissioner requested representatives of the manufacturers to present suggestions for a revision of the code. Thirteen refrigerating engineers were present at the meeting held in October, 1926. The suggestions offered were turned over to C. K. Michels, refrigerating engineer of the Fire Department, who drafted a tentative ordinance which was submitted at a joint conference of the Fire Department and the refrigerating interests on April 5, 1927. As a result of this conference the final draft was made and submitted to the Board of Aldermen.

The proposed ordinance was printed in the City Record of New York, Friday, June 24, and is reprinted in full below:

Fire Commissioner—An Ordinance to Amend Chapter 10 of the Code of Ordinances, Relating to Explosives and Hazardous Trades

Fire Department of The City of New York, Office of the Commissioner, Municipal Building, June 16, 1927.

Hon. JOSEPH V. MCKEE, President, The Board of Aldermen, City Hall, New York:

Dear Sir—The frequent calls for the rescue squad of this Department to go down into cellars and subcellars and rescue employees endangered by escaping gases, and the hazard to human life, have made it necessary to bring that portion of the Code of Ordinances relating to refrigeration up to date.

Technical men from the various colleges and universities in this vicinity, as well as representatives of the American Society of Mechanical Engineers and the American Society of Refrigerating Engineers, have contributed their suggestions and opinions and these have been incorporated in these requirements.

Attached are two copies of the proposed code, which has been reviewed by the Corporation Counsel. Such changes as he considered necessary have been made in the phraseology for introduction and speedy enactment by the Board of Aldermen, which I trust is agreeable.

Yours truly,
JOHN J. DORMAN,
Fire Commissioner.

AN ORDINANCE to amend chapter 10 of the Code of Ordinances, relating to explosives and hazardous trades.

Be It Ordained, by the Board of Aldermen of The City of New York, as follows:
(Continued on Page 6)

SUPERIOR MOVES TO CANTON

The Superior Iceless Refrigerator, Inc., has moved executive and sales offices from Cleveland to Canton, O., where the factories of the company are located.

Of Special Interest In This Issue

The New York Code

The proposed New York safety code which is printed in full in this issue has been awaited with keen interest for many months. On the account of the possibility that it may become a guide to other cities in the preparation of similar codes, it deserves the closest attention of everyone interested in the future development of electric refrigeration. A hearing will be held in September and if changes are needed to safeguard the industry's interests, preparation should be made at once to meet the situation.

The Patent Record

The seventh and final installment of the complete record of all electric refrigeration patents issued up to

Lindbergh Photo in Chef's Masterpiece Attracts Attention to Refrigerated Display Case in Philadelphia Window Exhibit



The electrically refrigerated display case pictured above was displayed in the window of the Philadelphia Electric Co., Philadelphia, Pa., for a week recently. Each day a different restaurant was asked

to provide the food to be displayed during the day, in order that a more direct and stimulating appeal than could possibly be made by an empty case, would be made. The platters of food prepared for the

day, when the photograph was taken, came from the Hotel Benjamin Franklin, whose chef, Maxime Huguet, has encased a picture of Colonel Lindbergh in the gelatin of the center platter.

ABSOPURE PLANS BROAD DEVELOPMENT IN FIELD OF ELECTRIC REFRIGERATION

President of General Necessities Corporation Makes Statement to Stockholders

A statement has been issued to the stockholders of the General Necessities Corporation, Detroit, by the president, David A. Brown, covering the details of the sale of the ice and coal divisions of the corporation, giving a balance sheet dated June 30, 1927, and reporting upon the business of the company for the first six months of the year.

The Detroit City Service Company, purchaser of the divisions recently sold, is reported as making full payment for the ice and coal divisions, paying in cash \$4,650,000 and \$1,600,000 in 7% preferred stock of the purchasing company, making a total of \$6,250,000, which was the agreed sale price. The sale was made as of June 1st, although the new company did not actually take over the property until July 1.

Since the sale of the two divisions to the Detroit City Service Co., the following divisions remain as companies within the General Necessities Corporation: The Absopure Refrigerator Company, Absopure Beverage Company, Absopure Water Company, General Ice Cream Company, General Cold Storage Company, General Markets Company, General Properties Company, and the Vogt Refrigerator Company.

The statement deals in detail with the development of the electric refrigerator made by the corporation. At present, after a two-year developmental period, the company is manufacturing household refrigerators to meet any size demand, including an apartment house line; a full line of commercial electric refrigeration machines, refrigerating machines for soda fountains, beverage dispensers, and ice-cream cabinets.

Impressed With July 6 Editorial

"I want to compliment you on the character of the trade newspaper into which you have developed ELECTRIC REFRIGERATION NEWS in such a short time.

"I am particularly well impressed with the July 6 editorial under the subject of 'Canned Sales Talk.' There is no question but those who are doing the real selling in electric refrigeration today are salesmen trained in this particular line."—A. F. Goss, Electric Refrigeration Corporation, Detroit.

UTICA, N. Y., CENTRAL STATION HAS ELECTRIC REFRIGERATOR SHOW

Demonstrates Various Units In Its New Auditorium—Five Companies Take Part

During the week of June 27, the Utica Gas and Electric Company of Utica, N. Y., staged a demonstration of electric refrigerators—the first show of its kind held in Utica.

Mrs. Phyllis Krafft Dunning, a representative of The Society for Electrical Development of New York, gave talks on the care and use of electric refrigerators, explaining the principles upon which electric refrigerators operate and their advantages. Desserts, made and frozen in the trays of the refrigerators on display, were served.

Units from the various refrigerator companies operating in Utica were on display in the Gas and Electric Company's new auditorium where the talks were given, and a special representative from each refrigerator company was on hand to explain the particular merits of his machine. The companies taking part in the demonstration were Frigidaire, Copeland, Icemaid, Electrice and Servel.

YORK BUYS ARCTIC

The Arctic Machine Company, of Canton, O., and the York Manufacturing Company, of York, Pa., have been consolidated. The merged plant will be the largest refrigeration machinery plant in the world, according to the announcement. Thomas Shipley, of New York, will be president of the consolidated companies, with each concern retaining its corporate name. The merger was effected through sale of the Canton plant to the York company for approximately \$3,500,000, it was said.

Tubing for condensers
Smooth. No possibility of scale. Up to 100 foot lengths. Formed to your order.
1431 Central Ave., Detroit, Mich.
WOLVERINE
STAINLESS COPPER AND BRASS TUBING

COPELAND REPORTS NET EARNINGS IN 5 MONTHS OF 1927 AS \$185,645.03

Foresees Important Developments In Commercial Field by Employing Silica Gel

Net earnings of Copeland Products, Inc., Detroit, are reported for the first five months of 1927 at \$185,645.03, with a net worth of over one and one-third million dollars. These earnings on approximately 100,000 "A" shares outstanding, amount to nearly \$2.00 per share. The first five months of the year include two of the best months of the year for electric refrigeration sales, April and May, and two of the worst months in the calendar, January and February. Generally speaking, the first six months of the refrigeration calendar are better than the second half.

Shipments of Copeland units for the first six months were 207% greater than for the same period in 1926, and 1145% greater than this period in 1925. Sales outlets have increased over 800% since January 1, 1926, and 191% from January 1, 1927, to date. It is said in the electric refrigeration industry that next in importance to a standardized product ranks the establishment of sales outlets.

Export sales require 10% of its production, with Copeland users in nearly every civilized country. Its foreign representation extends from Great Britain to Australia, South America, Canada, China, South Africa, India, Europe, Japan, and the West Indies, wherever electric power is to be found, have Copeland dealers.

The company, in co-operation with the Davison Chemical Company and the Silica Gel Corporation, now foresees important developments in the commercial refrigeration field by the remarkable absorptive process employing Silica Gel.

GEORGIA POWER PUTS OVER HALF MILLION DOLLAR CAMPAIGN

When the Georgia Power Co., Atlanta, completed their electric refrigeration campaign, \$504,687.37 worth of refrigerators, totaling 1,257 units, had been sold in fifty-two days. More than \$120,000 in sales was reported in the final week of the campaign.

Greenville, with 418% of their quota sold, won first prize, with John Oliver and C. R. Askew, of the Frigidaire organization, taking \$375 in prizes. Atlanta, while not selling its quota by fifteen per cent, sold \$237,404.50 of electric refrigerators between May 4 and July 1.

GOVERNOR SMITH BUYS ELECTRIC REFRIGERATOR

Governor Alfred E. Smith has just purchased a Servel electric refrigerator for the executive mansion at Albany, N. Y. The Governor's secretary, George B. Graves, has purchased a Welsbach unit for his home.

DEPT. OF COMMERCE CALLS MEETING ON STANDARDIZATION

Committee on Metals Utilization To Meet With Manufacturers in Cleveland, July 27

A general conference of those interested in the refrigeration industry has been arranged for July 27 by R. L. Lockwood of the National Committee on Metals Utilization of the United States Department of Commerce. It will be held in the Chamber of Commerce Building, Cleveland, O.

The conference has come about because of the activity of a large number of manufacturers of electric refrigerators who have been in correspondence with the Division of Simplified Practice of the Department of Commerce in regard to possibilities for simplification and standardization of refrigerator cabinets and other features.

The Department of Commerce has also, at the request of these manufacturers, taken up the matter with the manufacturers of ice boxes, with the American Society of Refrigerating Engineers, the National Association of Ice Industries, and other interests concerned with the refrigeration industry.

The purpose of the conference is to bring out the ideas of the various interests in regard to possibilities along these lines, to get tangible suggestions as to features or items which can be simplified to advantage, and to appoint a standing committee of men in the industry for the purpose of making a constructive study, gathering all the necessary facts from the various companies engaged in manufacturing these products.

It has been suggested that the matter of dimensional sizes of cabinets be undertaken first, and that the first step be to determine the possibility of establishing four or five standard maximum widths for cabinets of domestic size, both for mechanical refrigeration and for ice.

Letters have been received from between seventy and eighty manufacturers indicating their keen interest in the matter, and their desire to attend this conference, according to Mr. Lockwood.

Practically without exception, manufacturers and engineers in all branches of the refrigerating industry agree upon the necessity for establishing certain standards of practice for the purpose of avoiding unnecessary waste due to excessive and useless variety of product.

The American Institute of Architects is also interested in the matter and can undoubtedly be counted upon to support any such action taken by the manufacturers.

COLDK BULLETIN TELLS OF PLAN FOR FINANCING

Coldak Corporation, New York, issued a bulletin to holders of Class A stock, dated May 28, 1927, which presents to them the financial standing of the company, including a consolidated balance sheet.

Coldak Corporation was incorporated in January, 1926, to manufacture Coldak refrigerating machines, which had previously been manufactured by Multicold Company, Providence, R. I. The company acquired the Alaska Refrigerator Company October, 1926, the purchase being financed by an issue of \$1,500,000 principal amount of 6½ per cent seven-year debentures.

All of the capital stock of the Alaska is owned by Coldak, but no cash was withdrawn from the Coldak treasury to pay for the Alaska.

In October, 1926, the management notified the company, according to the statement, that more working capital must be provided if the company was to successfully carry out the operations planned. And since no plan has been worked out, the board of directors ask in the bulletin that holders of Class A stock subscribe \$1.50 per share for the new financing.

Lack of immediate working capital, it is pointed out, is the chief difficulty facing the company, and according to E. J. Rock, Class A stockholders are subscribing in answer to the request to remedy this difficulty.

DATE OF INTERNATIONAL CONGRESS POSTPONED

The fifth International Congress of Refrigeration, which was to be held in Rome, Italy, in September, has been postponed until April 4, 1928.

Servel Moves Advertising and Sales Offices

Servel Corporation has moved its advertising and general sales departments to Evansville, Ind. These offices were formerly at 51 E. 42nd Street, New York.

AMERICAN PRACTICE DISCUSSED BY GERMAN REFRIGERATING SOCIETY

Modern Domestic Refrigerating Machines of Compression and Absorption Types Compared

Following is an abstract of a paper presented before the regular meeting of the German Refrigerating Society at Karlsruhe, May 31 to June 2, 1927, by Prof. Dr. Planck:

The development of small refrigerating machines has already become very extensive in the United States. In Germany, also, these small replicas of the familiar ice machines are assuming an increasing importance. Some of the basic requirements of small refrigerating devices may be stated as follows. These are primarily reliability of operation, slight wear, freedom from danger of accident, simple operation, maintenance of a uniform temperature, noiseless operation and low initial cost. The efficiency of the equipment is somewhat diminished in the case of small refrigerating units, but there is, however, a limit for operating costs which must not be exceeded. For an average household a refrigerator would be used with a utilizable space of from 5.0 to 7.0 cu. ft., and with a cooling capacity of from 800 to 1,200 calories per 24 hours, corresponding to the melting of from 22 to 26 lbs. of ice. The temperature in the refrigerator should be maintained at 39 degrees F.

The compression machines, so far as their moving parts are concerned, are subject to wear even when thoroughly lubricated. The American concerns furnish a service to their customers consisting of the supplying of special medium and of the application of the lubricant. Reliability of operation cannot be fully complied with by the German type machines. One great advantage of absorption machines is that all lubrication is dispensed with.

Compression machines use as the refrigerating medium sulphur dioxide, ethyl chloride and chlor isobutane. In a few cases ammonia is used, which is not advisable for machines intended for domestic use. Carbon dioxide is practically unused for small refrigerating units. In the United States chlor isobutane is important, as it is produced from a product of natural gas and is similar physically to sulphur dioxide.

In absorption machines, ammonia is mainly used. As concentrated ammonia solutions have some corrosive effect upon metals, a search has been made for other media. Ammonium nitrite, calcium chloride and other halogen salts have been proposed. As absorption media active carbon and silica gel are among the most important.

NEW ENGLAND DEALERS FOR WAYNE CO. NAMED

Boston Factory Branch Organizes Sales Force

The Wayne Co., Fort Wayne, Ind., with a New England factory branch at 154 Cambridge Street, Boston, has organized its sales force in that section with the following dealers handling the Wayne Electric Refrigerator:

Maine: T. W. Kerrigan Co., 151 Lisbon Street, Lewiston; J. W. Penney & Sons Co., 16 Maple Street, Mechanics Falls; Fred H. Short & Co., 41 Prospect Street, Waterville.

New Hampshire: The Brown Company, 982 Main Street, Berlin; W. V. Toomey & Company, 71 Railroad Street, Keene.

Vermont: Roberts Automobile Co., 47 Elm Street, Brattleboro; Frank S. Lanou & Son, 90 St. Paul Street, Burlington; Charles J. Dewell, 9 Clough Avenue, Windsor.

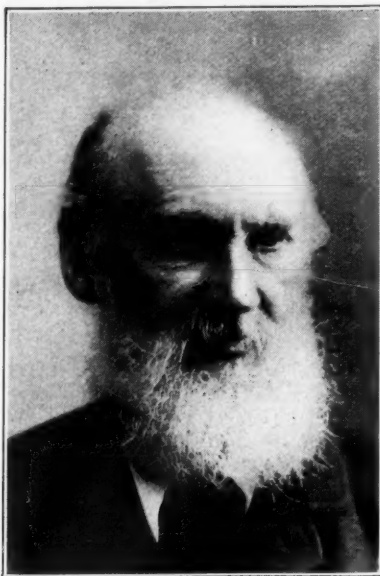
Massachusetts: Acme Heating Co., 13 Hawkins Street, Boston; McLean & Cousens Co., 65 Chandler Street, Boston; C. F. Dahlborg & Sons, 981 Main Street, Campello; Canova Brothers, 765 Dwight Street, Holyoke; A. B. Ross, 8 Grand Avenue, Millers Falls; Blake & Briggs, 11 Richards Avenue, North Attleboro; South Shore Electric & Refrigerating Co., 1051 Hancock Street, Quincy; Burnett & Selkirk, 2 Stanton Avenue, South Hadley; Smith & Roberts, 314 Bay Street, Springfield; Carl L. Stebbins, 623 Main Street, Springfield; I. F. Whitmarsh Co., 64 Weir Street, Taunton; Paul W. Rishell, 55 Portland Street, Worcester; Roch A. Meunier, 580 West Main Street, North Adams; Edgar O. Hunt, 72 Pearl Street, Somerville; John D. Bussell, 1877 Dorchester Avenue, Dorchester.

Connecticut: Collins & Freeman, 266 Main Street, Branford; Aben Hardware Co., 74-78 Bank Street, New London; George L. Whitlock, 292 Church Street, Torrington; John R. Colli, 52 Oak Street, Windsor Locks; Robert L. Lyman, 6 Elm Street, Middletown.

Rhode Island: Moses Payne, Jr., Westminster Street, Westerly; J. E. Charland & Co., 193 Exchange Street, Pawtucket; Hiram G. Root, 378 Elmwood Avenue, Providence.

New Copeland Outlet in Milwaukee

The Copeland Refrigeration Company of Milwaukee has opened a new office and display room at Prospect and Windsor Place, in one of the fine residence districts of Milwaukee.



LORD KELVIN

KELVIN DISCOVERED BASIC PRINCIPLES OF REFRIGERATION

Scientific Accomplishments Re- counted on 103d Birthday Anniversary

On the 26th of last month scientists throughout the world commemorated the 103rd birthday of Kelvin, the great British mathematician, whose studies in thermodynamics played so great a part in laying the foundation for electric refrigeration. Though dead but twenty years, Kelvin's name is known throughout the world as the finest type of scientific mind produced by the mid-Victorian age.

Kelvin lived to see his method of cooling air in unlimited quantities applied to every-day life, commenting that it had been put to practical use "for carrying large supplies of fresh meats from North America to Europe; in a great refrigerator sent out for the abattoir at Brisbane, Queensland; and other large practical applications of a similar kind."

This is quoted from his famous Glasgow lecture on "Heating and Cooling by Means of Air," given fifteen years before the earliest of the 178 subdivisions classified by our patent office under refrigeration.

Among other things, Kelvin discovered the principle whereby air or gases can be compressed to a point where, through rapid expansion, refrigeration results.

Prof. A. S. Langsdorf, Director of Industrial Engineering and Research, Washington University, says, "Thanks to the work of Kelvin and his contemporaries, the scientific foundation was laid for transferring the cold of the polar regions to the every-day needs of mankind, revolutionizing the domestic habits of the civilized world and at the same time providing it with a new freedom. Through the agency of electricity, we are now able to plug in for polar cold as easily as for tropical heat. The devices by which this feat is accomplished furnish the solution of one of the greatest of the problems of the modern man, and it should not be forgotten that the entire developments rest upon mathematical studies of thermodynamics in which Kelvin took a leading part."

"The ancient man had one dominant problem—how to get food. He hunted and fished; and he ate his food raw because he didn't know how to cook it. When he learned how to make fire civilization began. Modern man has many problems, but getting food sinks into insignificance in comparison with the problem of keeping it wholesome; in fact, the preservation of food easily ranks second in importance, economically, to his transportation problem."

"Cold is only the absence of heat, just as darkness is the absence of light. Ice melts in a refrigerator because it has absorbed the heat from the food with which it was placed in contact. The melting of the ice is a necessity if the food is to be cooled, contrary to the belief of numerous thrifty housewives, who carefully wrap the ice in paper, or in a blanket, on the mistaken theory that the preservation of the ice will prolong its refrigerating qualities."

"Kelvin showed that when any substance changes its form from a solid to a liquid, or from a liquid to a gas, it absorbs heat from its surroundings, and that when it changes from a gas to a liquid, or from a liquid to a solid, it gives off heat."

"Were Kelvin alive today he would be surprised to find how the application of scientific theories developed by him and his contemporaries has led to the creation of a new industry, electric refrigeration, which has put hundreds of millions of dollars to work, giving employment to hundreds of thousands."

E. H. Merritt to Sell G. E. Unit in Milwaukee

E. H. Schaefer, of the Electric Refrigerator Company, distributors of the General Electric Icing Unit in Milwaukee, has opened a new office and salesroom at 131 Third Street. E. H. Merritt, formerly manager of the electrical refrigerator department of Ed. Schuster Co., has been appointed as sales manager.

WOODBIDGE RE-ELECTED PRESIDENT OF INTERNATIONAL ADVERTISING ASSOCIATION

C. K. Woodbridge, president of the Electric Refrigeration Corporation, Detroit, was elected president of the International Advertising Association for a third term at the twenty-third annual convention of the association, held in Denver, June 27, 28, and 29.

The re-election of Mr. Woodbridge is said to be one of the most significant achievements of recent years in organized advertising, since it brings into immediate action the so-called "Detroit plan," which was adopted at the convention.

Mr. Woodbridge in a telegram to the New York Advertising Club News outlined the main objectives of his next administration as the recognition of a business organization, combined effort in organization and sustaining advertising clubs, distinct statement of principles upon which national and international advertising is founded, the need for research, and the need for funds for the projection of the suggested program.

The 1928 convention of the association will be held in Detroit.

NEW GENERAL ELECTRIC SHOWROOM IN BOSTON

The General Electric Company has announced the opening of a new showroom in Boston. It is one of thirty to be opened in various sections of the country.

Secures Patent On Door Shield

Rudolph R. Riek, secretary manager of the Rhinelander Refrigerator Company, Rhinelander, Wis., has been issued a patent on a new porcelain shield for refrigerator doors. The shield is one of the five patents that Mr. Riek and his son, Forest Riek, have secured during the present year on attachments for refrigerators.

Agreement on a Fundamental

REFRIGERATION SYSTEMS now on the market represent almost every progressive style of development through which the industry has passed during recent years.

Engineers frankly rate these various systems with widely differing degrees of efficiency. In general, the standards by which the rating is done have been agreed upon. On one point there is complete accord: the ideal refrigerating system eliminates service requirements to a point where they are of no concern to anyone.

Central Stations, Distributors, Dealers, will increasingly make freedom-from-service-needs a prime essential in their selection of a system of refrigeration they are willing to sell.

The importance of the achievement of Low Pressure-Slow Speed Refrigeration by Welsbach lies in the fact that it fills the picture of performance by eliminating entirely the usual causes of service-needs. It is setting new standards of reliability in operation and freedom from service requirements.

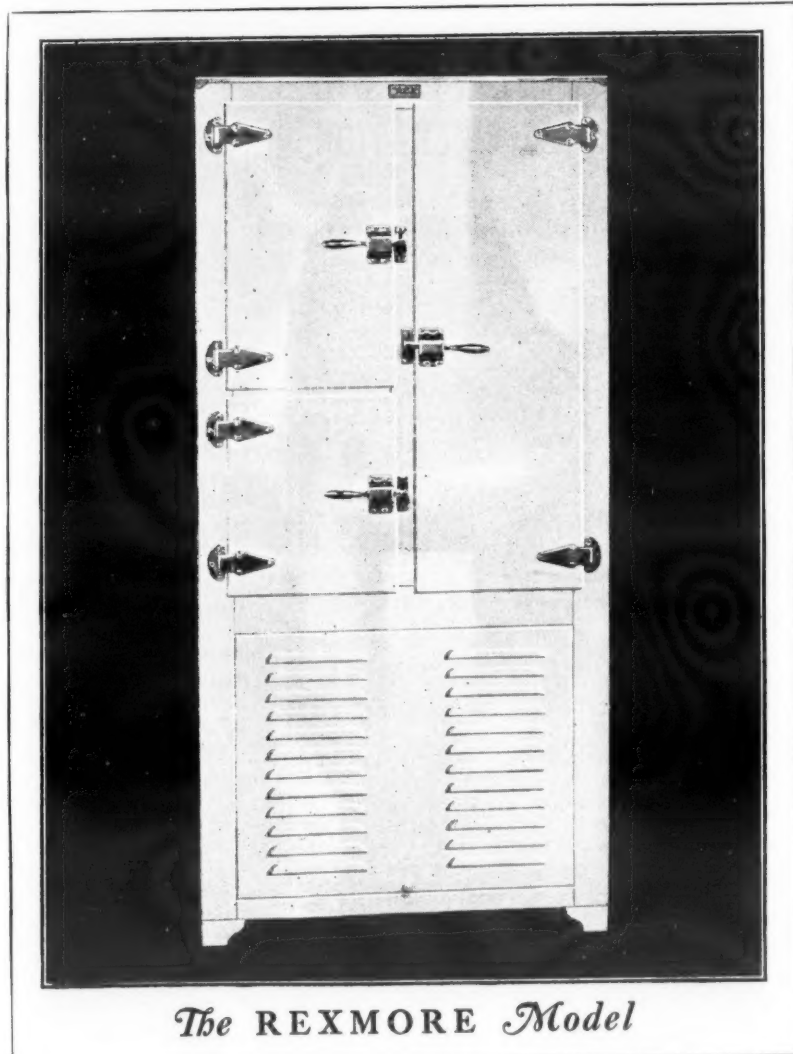
The story is convincing, the facts are many. Those who are interested in securing a selling franchise are invited to write to Welsbach Company, 307 Ellis Street, Gloucester City, New Jersey.



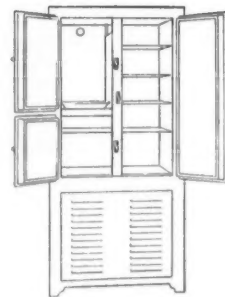
20 lbs. Pressure
280 R.P.M

Welsbach Cabinets and equipment
—from foundry to finished product—made in the same plant.

Welsbach Low Pressure Electric Refrigeration



The REXMORE Model

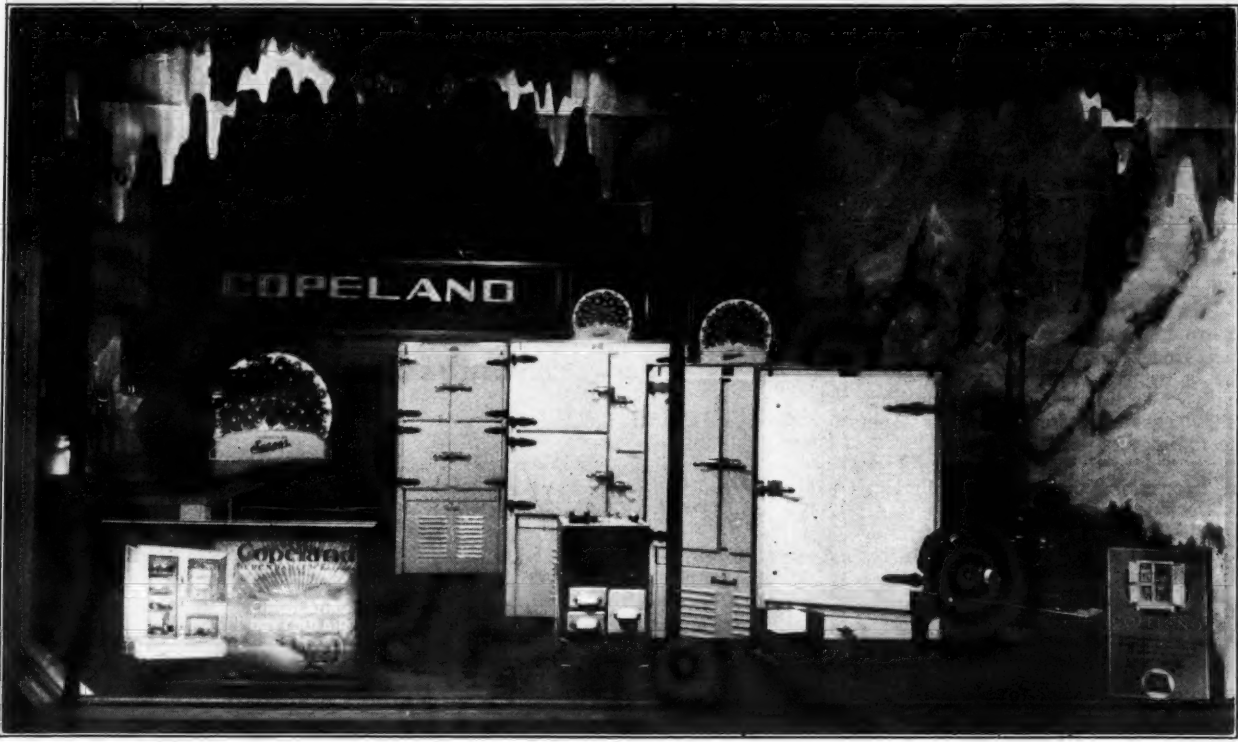


The Superior quality of Rex metal cabinets for electrical refrigeration rests securely on Rex's extensive experience in metal working and Rex's concentration on the manufacture of fine metal cabinets, exclusively.



FINE METAL CABINETS FOR ELECTRICAL REFRIGERATION

Attractive Window Display of Carl Windel & Co., Portsmouth, O., Dealer



Ferries, with Electric Refrigeration Equipment, Now Operating On San Francisco Bay

When the Southern Pacific placed six new ferry boats in operation between Oakland and San Francisco not long ago, all of them were equipped with Frigidaire. In addition, several of the older Southern Pacific ferries are likewise fitted with electric refrigeration. Of the new boats, one is a passenger ferry and the others are for automobile traffic. The electric refrigeration serves the restaurants maintained on each of the boats, and also takes care of the drinking water systems.

The Santa Fe system also has several passenger and automobile ferries with similar equipment.

On the two new ferries completed for the Key Route System serving the San Francisco Bay region, Frigidaire was installed. The Key Route System operates four ferries, all of which are now equipped with Frigidaire.

Approximately 50,000 passengers are carried each day on the ferries serving the cities of the Bay region. Hence it can readily be seen how many persons are being reached with electric refrigeration as they commute between their homes and San Francisco. Most of the passenger ferries have a capacity of 3,500 persons, and the automobile ferries generally accommodate about 80 cars.

In addition to larger installations such as in the ferry boats, the electric refrigeration business has been exceedingly good in Northern California since the first of the year, according to J. P. Dodds, of the San Francisco office of Frigidaire. He pointed out that during the month of March, 1927, the San Francisco office, which has charge of the sales for all that part of the state, did 50 per cent of the

total amount of business that was transacted in the entire preceding year of 1926. That office now figures it has installed electric refrigeration equipment in approximately 1,738 kitchens in the San Francisco Bay region.

While in many respects San Francisco and northern California have taken rapidly to the idea of electric refrigeration, the climate of San Francisco itself offers a handicap not to be encountered in cities farther inland. The average temperature of San Francisco for the year is about 58 degrees; consequently it is not an ice-using city. Under ordinary circumstances foods appear to keep very well without any refrigeration other than with the help of the famed "California coolers" so far as the housewife can tell. If the food smells and tastes all right, the housekeeper feels that she does not require ice, much less an electric refrigerating unit, except for a few days out of the year.

Nevertheless, the idea of electric refrigeration is gaining a firmer foothold steadily. It is estimated that 90 per cent of all the apartment houses now being erected, or which have been recently completed, are equipped with some means of electric refrigeration.

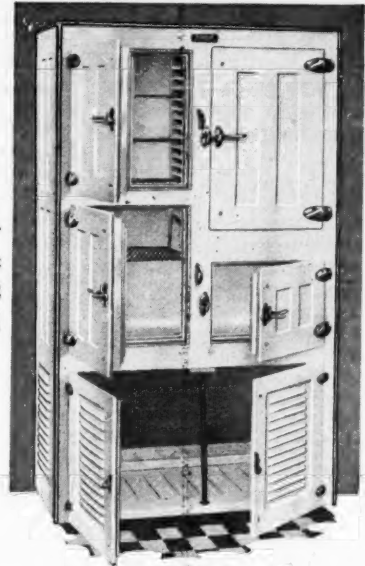
The abundance of water power and subsequent electrical power in California does away with one drawback which organizations promoting electrical refrigeration in other states frequently meet in selling equipment in the small towns or rural districts. Country homes, almost always on a power line, prove to be an excellent market for electrical refrigerating machines. Several concerns report that their business in the rural sections is remarkably good.

Leavitt Addresses Central Division Convention of N. E. L. A.

Louis S. Leavitt, Chicago, secretary of the Electric Refrigeration Committee, Commercial Section, National Electric Light Association, spoke on electric refrigeration before the steamboat convention of the North Central Geographic Division of the national organization, June 25.

The convention left Duluth on the steamer Hamonic Friday evening, June 24, and returned the following Monday evening.

BOHN SYPHON REFRIGERATORS



Beautiful, Distinctive. Can be had in 7, 9 and 12 cubic foot net food storage capacity.

White Porcelain Enamel inside and outside. The machine compartment is ideal for storage space where remote installation is made.

For Electric Refrigeration

Write for Full Particulars

Bohn Refrigerator Company

SAINT PAUL, MINNESOTA

These Models are on Display at our own Stores in

NEW YORK
5 E. 46th St.

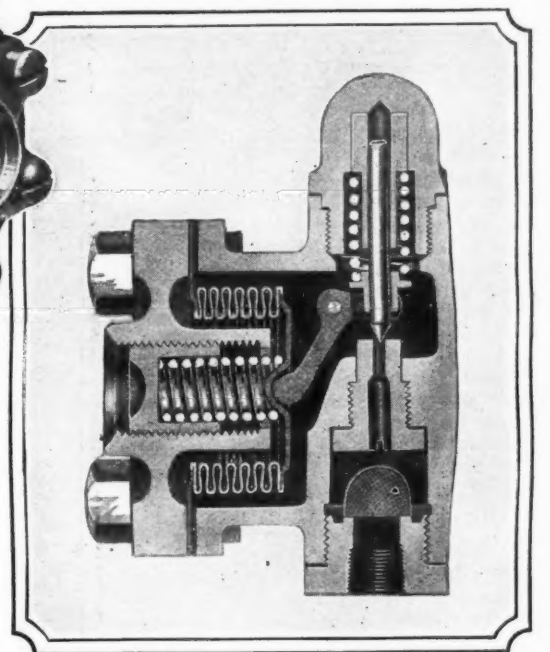
CHICAGO
227 No. Michigan Blvd.

BOSTON
707-709 Boylston St.



American Automatic Expansion Valve

Cross Section of Valve

Non-Chattering
Non-Wire-Drawing
Self-Cleaning

American Automatic Expansion Valve

The new AMERICAN Automatic Expansion Valve is the best expansion valve on the market but costs no more than many inferior valves.

One prominent manufacturer who has standardized this valve, advises the first thing they do on a service call is to install an AMERICAN instead of their old valve and their troubles are over.

Another manufacturer stated: "It is absurd to try to develop an expansion valve when one of this calibre can be purchased at reasonable prices."

Another manufacturer, who has tried all kinds of valves, says he "is now set on a source of supply for expansion valves", as "the AMERICAN excels any he has ever tried."

Try one of these valves. The coupon below will bring one to you. After you have tried it out, and say the word, we will invoice it to you or accept its return according to your good judgment.

Either $\frac{3}{8}$ " pipe thread shank or one of the two flanges shown above the coupon are standard, but on quantity orders we can supply these valves equipped with connections to meet your requirements, at a nominal tool charge.

Fill out and mail the coupon today and solve your expansion valve troubles!

AMERICAN RADIATOR COMPANY

Industrial Division No. 104

CHICAGO NEW YORK KANSAS CITY BUFFALO LOS ANGELES
FACTORY AT DETROIT, MICH.

Manufacturers of AMERICAN Domestic Refrigerating Units, Commercial Refrigerating Sections, AMERICAN Float Valves, (Low Pressure—High Pressure), also special job foundry work per your designs and requirements.

NEW G. E. DEALERS IN
NEW YORK TERRITORY

The following dealers have been appointed by Rex Cole, Inc., Distributor of the General Electric refrigerator in the New York metropolitan district:

A. I. Namm & Son, 452 Fulton St., Brooklyn, N. Y.

Austin Electric Supply Co. Inc., 103 Martine Avenue, White Plains, N. Y.

Comforts Distributing Corp., 278 Merrick Rd., Rockville Center, L. I.

G. C. Feltman & Bro., Ossining, N. Y.

Gluck & Egan, Inc., 25 Prospect Avenue, Mount Vernon, N. Y.

Home Equipment Co., 113 Glen Street, Glen Cove, L. I.

Alfred L. Hart, 72 E. Main Street, Patchogue, L. I.

Jas. R. Hewitt, 608 Main Street, New Rochelle, N. Y.

H. G. Houlberg, Inc., 139 E. Main St., Mt. Kisco, N. Y.

The Lockwood & Palmer Co., 92 Park Place, Cor. Summer St., Stamford, Conn.

Phillips & Ibsen, Inc., 69 S. Broadway, Nyack, N. Y.

D. M. Read Co., 1050 Broad Street, Bridgeport, Conn.

Saunders Electric Appliance Co., 222 Richmond Avenue, Port Richmond, N. Y.

Sub Dealers in Suffolk County

Alfred L. Hart, one of the dealers listed above, has appointed the following sub-dealers in Suffolk County:

F. J. Nienburg, Broadway, Amityville.

Adolph Guldli & Son, Main Street, Southampton.

Ernest Dredge, Main Street, Bridgehampton.

Rothman's Dept. Store, Main Street, Southold.

Ackewell Mfg. Sales Co., Inc., Main Street, Northport.

W. V. Duryee, Lovers Lane, Mattituck.

M. N. Ammann, Peconic Avenue, Riverhead.

S. T. Preston & Son, Main Street, Greenport.

E. E. Johnson, Bridge Street, Shelter Island.

Gay-Moore Sales Co., Inc., W. Main Street, Babylon.

C. M. Felt, 243 Main Street, Huntington.

Thompson & Osborne, Main Street, Sag Harbor.

Raymond S. Parsons, Newtown Lane, Easthampton.

Goode Bros., West Main Street, Bay Shore.

Henry F. Wolf, Carlton Avenue, Central Islip.

Ire Beebe, 112 Main Street, Sayville.

Lyon Bros., East Setauket, Setauket.

Arthur G. Lucas, Montauk Road, Bellport.

George Herrmann, Jr., Main Street, Center Moriches.

Shaw & Haviland, Main Street, Westhampton Beach.

A. N. Randall, Jones Street, Port Jefferson.

William's Hardware Store, Main Street, Islip.

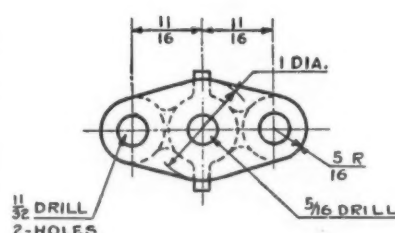
Anthony Macheck, Smithtown Branch, N. Y.

Springfield, Mass., Distributor In
New Location

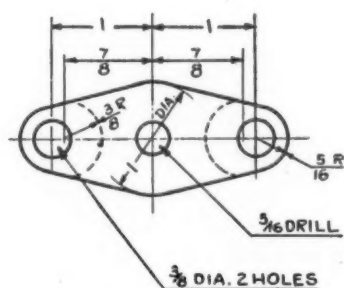
The J. M. Bess Kelvinator Corp., Springfield, Mass., has established sales and service stations at 1127 and 1626 Main Street. The company's field also includes Chicopee, Westfield, Longmeadow and other nearby Massachusetts towns.

Mayberry With Buffalo-Lipman

Franklin S. Mayberry is now associated with the sales promotion department of the Buffalo-Lipman Refrigeration Company, Buffalo, N. Y. Mr. Mayberry was formerly connected with the Servel Corporation, New York City.



Flange No. 1



Flange No. 2

AMERICAN RADIATOR CO.
Industrial Division
816 South Michigan Ave.
Chicago, Illinois

You may ship one No. 662 () AMERICAN Automatic Expansion Valve with () connection for test purposes. If it proves entirely satisfactory, I agree to pay for same, if it does not perform to my satisfaction, you agree to accept its return.

Name _____

Address _____

City _____

[Please insert name of refrigerant and the type of connection desired in the spaces provided for same.]

American Writer in Italy Considers Good Effects of Electric Refrigeration After Reading Advertisements

Says It Is Typical of Our Creative Impulses, Combining Science With Beauty—A Flowering in Art of Habits of Living

The following philosophical discussion of electric refrigeration by Gilbert Seldes is taken from an article which was originally printed in *The New Republic*. It presents an interesting viewpoint of the relationship between artistic expression and mechanical invention:

"Until a few weeks ago I have been living in a salmon-colored villa on a hill looking out on the Mediterranean. Between the hill and the sea passed the main road connecting Cannes and Nice, and this accident of location gave me a single advantage over the more prosperous Americans whose villas lay on the sea at Juan-les-Pins or on the chic Cap d'Antibes. I had ice. They, by ignoble bargains with butchers, might acquire an occasional handful to shake a cocktail; but to me it was delivered every day, in theory, a great satisfactory bar. Actually, the factory ran short and I had none for ten days at a time; or the truck broke down; but, at any rate, I was supposed to have ice.

And at intervals my friends and I read in the *Saturday Evening Post* pages of advertisements of electric refrigeration. My Country 'tis of thee!

I am aware that this sounds like a sneer and that there have been times when I would have meant it to. Yet a sneer is the last thing I want to convey at the moment. I do not believe that ours is a culture consisting exclusively of bathtubs and steel filing-cases made to resemble fumed oak and advertised burial grounds for the illustrious dead. But even if that were all, I should still hold that the sneer, as a unique response to our culture, was premature.

Clean, Economical and Certain

"Electric refrigeration is a beautiful example of what we are after. It intends to be clean, economical, certain; it eliminates chores; it incidentally banishes a human being; but my New York ice man was never a definitely personal quantity in my life, as the ice man was in France. The machine eliminates a man—but a man whom machinery had almost destroyed in advance.

"And added to all its other promises, electric refrigeration offers 'dainty cubes of ice,' nearly two hundred of them always ready for use. If I could resist the rest, I should break down here. It is an aspiration to luxury accomplished in a sort of excess of enthusiasm over a domestic convenience; it is an image of 'cool, distinguished comfort' (as I recall the advertisement). Dainty cubes of ice—leisure without an ice-pick, uniformity where variety is a nuisance; we approach the English country-house as an ideal of existence—if we avoid the other ideal which is so much easier to achieve, the luxury-hotel.

"Dainty Cubes of Ice"

"The dainty cubes confess that economy and efficiency are not enough, and that the American man shall not live by sanitation alone. And it seems to me that they suggest something of the effect which our raw materials and our ways of handling them will have on us. We have been dealing with metals and ores singularly ill-adapted to the florid, to rococo. In one period, after the Civil War, we had a fancy for decoration and later fled from it not to simplicity, but to Mission. But in the steel age we can build neither baroque nor the falsely simple. We will ultimately have to build structurally, because concrete is not chiffon. And that means that our major products, solid, economically and tidily made, will accustom our minds to the good qualities of workmanship.

"We run the risk of construction without any creative power behind it. Our imaginations are not likely to riot. But our mechanics and our applied science are teaching us something valuable about the methods of the artist; not the romantic

lyricist, but the impassioned creator within laws and disciplines of his own discovery, the artist who cheerfully accepts the necessity for brainwork. The impulse to create is unaccountable; we know little of the environment which fosters it. But the habits of mind which carry the impulse to execution are observable; I suggest that our national preoccupations are not hostile to those habits.

Good Effect on Taste—a By-Product

"And, perhaps as a by-product, I fancy that concrete and steel and electric refrigeration are having a good effect on American taste. In Cartier's window in Paris there stood for months a clock made—as far as I could identify the tortured materials—of a slab of onyx on which rose two sets of pillars of ebony supporting a further slab of some red semi-precious ore; between these slabs and pillars was the clock proper, a dial glittering with gold-leaf and jewels around which moved hands encrusted with diamond chips, pointing to numerals in rubies or garnet. No doubt the clock was eventually bought by an American; but my contention is that Big Ben is a more beautiful object. In a house in Palm Beach there is a lavatory seat in the form of an imported armchair (obviously the period would be Louis the Fifteenth); and again the plumbing advertised in the *Saturday Evening Post* seems more attractive. Our clocks and our dynamos and our radiators are not the results of an impulse to self-expression; they communicate nothing. But there is in them the same pleasure in precision, in work well done, in neatness and mastery, that there is in the workings of a well made play. We should delude ourselves if we thought it was the highest pleasure; but we are singularly stupid if we get no pleasure at all.

Electric Refrigeration Is An Art

"It seems to me that American artists have been timid about using American methods, just as in the past they were timid about using American materials. We have let our imaginations run free, but with foreign material, as in the stories of Poe or the buildings of Stanford White; or used American material with a strong impulse and little discipline—from Mark Twain to Theodore Dreiser. It is a commonplace that architecture was the first of the arts to combine a strong native impulse with a strong discipline in keeping with the nature of the materials used, and architecture may stand as the type of our way of creating for some time to come. It is not exuberant; but urban America is not exuberant either, it is only excited. It is not florid. It is the product of science and it has beauty, a beauty entirely native to us and acceptable to us. It is the flowering in art of certain habits of living, ways of thinking and feeling, which for the most part express themselves in our slick inventions, our comforts and our domestic conveniences. It suggests that cubes of ice are not an end in themselves."

Henning Joins Penn Switch

Malcolm Henning has been appointed sales and advertising manager of the Penn Electric Switch Co., 306 Twelfth St., Des Moines, Iowa. Mr. Henning was for four years sales manager of the Chicago branch of the Rolls Royce Motor Company.

Howard Sales Co. Opens New Store in Tacoma

With a Kelvinator engineer as a demonstrator, formal opening of the Howard Sales Company in a new store at 741 Broadway, Tacoma, Wash., was effected during the week beginning May 16.

DIRECT ADVERTISING TO SELL SECURITIES OF ICE COMPANIES

Hoagland, Allum & Company, Chicago, dealers in investment securities, have prepared two publications on ice. The first of these is a folder setting forth "Some Facts About the Ice Industry—A Public Necessity," written by H. R. Walton, sales manager. Three charts are used in connection with this article, each depicting the growth of the ice industry from 1904 to the present.

Each page of the 12-page booklet, which uses the same cover design as the folder, is illustrated with drawing or graph. The necessity for refrigeration, the growth of the ice industry, the per capita use of ice, the limited field for refrigerating machines, and the large undeveloped field, are some of the topics discussed.

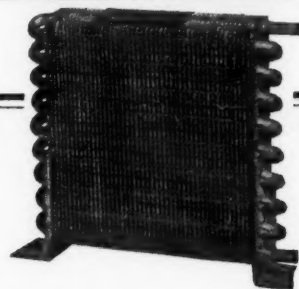
Graphs, tables and estimates are based upon information from the following: U. S. Census, statistics of manufacturers, Ice and Refrigeration Blue Book and Buyers' Guide, and statistics of income, Treasury Department.

Sells 268 Copelands to New York Apartment Hotel

Copeland, New York, reports the sale of 268 Copeland units for installation in the Park Crescent Apartment Hotel, 150 Riverside Drive, New York City. The order was secured by E. Clair Van Zoll, who has charge of the Contract Department.

Sales and Merchandising Conference to be Held in Chicago

The tenth annual sales and merchandising conference of the International Direct Mail Advertising Association will be held at the Hotel Stevens, Chicago, October 19, 20 and 21.



Flintlock Condensers

Are Uniformly Efficient

Because: The fin is an integral part of the Tube

Our Booklet Tells the Story

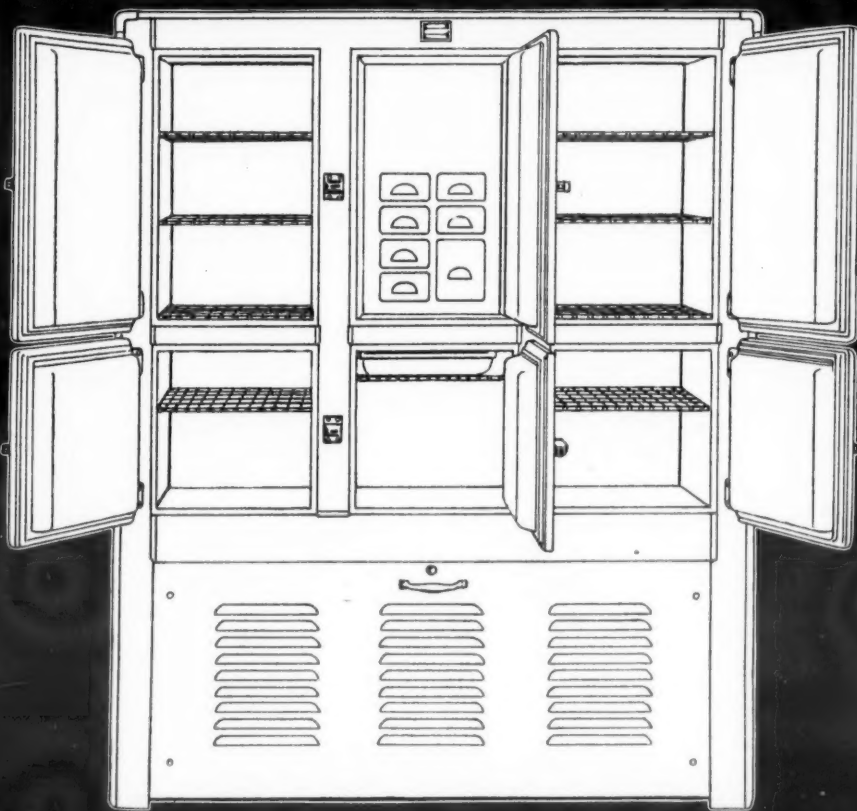
Write for It

FLINTLOCK CORPORATION

4461 Jefferson Avenue
Detroit, Michigan

Copeland

DEPENDABLE *Electric* REFRIGERATION



Calls the Prospect a "Future Owner"

Followed by

Future Frigidaire Owner

Interviewed at	Date	Time
Name		
Home Address		
Business Address		
Prev. Int. By		
Interested In	Household Commercial	
Price Quoted		
Remarks		

Interviewed by

A card used by the Frigidaire Corporation to record data regarding prospects shows an interested variation from the usual office form for such purposes in that it is headed "Future Frigidaire Owner." It is but one of many examples of the aggressive and confident attitude which characterizes the merchandising methods of the Frigidaire organization.

COPELAND sales for the first half of 1927 were more than double those of a similar period during 1926. This indicates two things: a strong preference for Copeland in the consumer market, and a product which justifies that preference. In certain territories which we have not yet closed, there is an extremely profitable future for aggressive business men who are qualified to operate as Copeland distributors or dealers. We invite inquiries pertaining to the advantages of the Copeland selling franchise.

COPELAND, 630 LYCASTE AVENUE, DETROIT, MICHIGAN

MORE ACCURATE DATA ON CAPACITIES NEEDED, SALES ENGINEER SAYS

Calls Attention to Importance of Tonnage Rates on Commercial Installations

Walter P. Davis, sales engineer, Rome Manufacturing Co., Rome, N. Y., suggests in the letter which follows that the matter of tonnage on all commercial refrigerating machinery should be clearly and definitely defined:

"By referring to your issue dated July 6th, the writer notes a picture on the first page illustrating the Lippman machine, which was installed in the University Hill Grocery and Market, Boulder, Colo. The machine is specified as a 1-ton Lippman, and the writer, who has worked as a distributor and district manager for the Lippman organization, wishes to call your attention to what is evidently a typographical error, as the machine shown is not a 1-ton Lippman. It is a machine which is model 100, having a single cylinder with 2 1/4" bore with 2 1/4" stroke, 350 R. P. M. By reference to your engineering data you can readily ascertain that this machine has a cylinder displacement 3,131 plus running at the above mentioned speed.

"Your attention is called to this error, as we do not want the industry who are gradually getting into the commercial field, to misunderstand sales possibilities of commercial equipment because of errors or misrepresentation. We believe the matter of tonnage on all refrigeration machinery should be clearly and definitely defined, and believe you will discover that every reputable manufacturer of refrigerating equipment in this country agrees with us. "It might be a good suggestion to have your publication enter into an arrangement with manufacturers whereby tonnage rates are given clear, in much the same way as you now specify manufacturers of various refrigeration products in your directory."

COLLECTION AGENCY NUISANCE ENDED FOR COLORADO MERCHANTS

An investigation in Colorado, which has resulted in the passing of legislation, revealed the operation of "foreign" collection concerns, selling so-called service. No less than fifteen concerns, operated from cities outside Colorado were the subjects of complaints from dealers, and Colorado's experience suggests that other parts of the country are being offered the same type of service, which, in practice, is very different than when explained by the salesman of the service.

The investigation, which was conducted by the Retail Merchants' Association of Colorado, indicates that many dealers sign collection service contracts without reading them in full, or analyzing them carefully. And then an experience like this follows:

A dealer turned over between 80 and 90 accounts to a Chicago collection company. The company collected \$330 and returned \$135 to him. One feature of the contract had been a docket fee, which was collected, not only on the accounts collected, but on all given to the firm for collection. Furthermore, the contract called for 50 per cent commission up to \$100, and 10 per cent

thereafter, with 50 per cent allowed on all outlawed accounts, accounts paid in installments, and accounts handled by the legal department of the collection agency.

A Sedalia, Colo., merchant received an accounting from a collection firm on collections amounting to \$24.52. The firm collected that amount, but its fees for the collection amounted, including \$3 for a rubber stamp, to \$24.76.

Because of complaints against collections of this kind, an act was passed during the last session of the legislature, compelling such concerns to post with the Secretary of State a \$5,000 bond. Lawyers, banks, and offices of the court are exempt from the act. The penalty is \$25 to \$300 for each offense, and within the meaning of the act each day a concern violates it is considered a separate offense.

The act will not be a hardship upon the legitimate collection concerns, according to E. Roger Jones, secretary of the Retail Merchants' Association, who says that it will be an advantage, in that it protects them from irresponsible concerns.

Colorado's lesson is of interest to other states, and this form of "service" is of interest to dealers in electric refrigeration, since it is a problem to be faced by any merchant who has collections to make.

ELECTRIC REFRIGERATION SHOWS GREAT GAIN

390,000 in Use First of Year, U. S. Report Says—1927 Sales May Raise Number to 500,000

In hundreds of thousands of American homes electric refrigerators are in use, according to Commerce Department statistics.

Emphasizing the sudden development of the new electric ice-making device, experts today pointed to figures listing 390,000 of them in use the first of the year, of which 250,000 were installed in 1926, and 75,000 in the previous year. This year's sales are expected to put the total past the 500,000 mark.

Nearly 200 companies are making or experimenting with the electric refrigerators, which sell at from \$200 to \$500, and about 20 nationally-known brands are now on the market.

Electric manufacturers assert their product does not compete to any extent with ordinary refrigerators. Their plants are now placed in only 2.4 per cent of the nation's homes, although 58 per cent of the homes are wired for electricity, it is said.—*Detroit News*, July 17, 1927.

New Company in Marinette, Wis., Enters Cabinet Field

The Marinette Showcase Co., Marinette, Wisconsin, is reported as a new company manufacturing electric refrigerator cabinets and display cases. Row W. Newman, formerly with the Badger Showcase Co., is directing manager of the company, whose officers are: W. C. Campbell, president; S. C. Miller, vice-president; M. D. Bird, treasurer; and Cephas Klaver, secretary. Officers, with F. J. Lauerma, make up the board of directors.

In spite of the millions of electric cleaners, washers, irons, table stoves, waffle irons and other electrical devices in the homes of the United States, about 83 per cent of the electricity used in homes is for lighting.

SMALL TOWNS GOOD TERRITORY—ICE SCARCE

F. J. Johanes, manager of the United Power & Light Corporation, Salina, Kan., expects to triple last year's sales of electric refrigerators, as he finds that the small towns near Salina are excellent territory for his salesmen.

"Often the ice supply is scarce," he says, "and in many instances it is priced too high. When we show the prospects in the small town how admirably the electric refrigerators meet their specific needs, sales are easily made."

Advertising is first done by Mr. Johanes in the newspapers of the outlying towns. He emphasizes always the fact that the customer there will receive the same service that the city customer gets. Salesmen follow up the newspaper advertising, and in one instance six electric refrigerators were sold in three days.

New Installations Reported

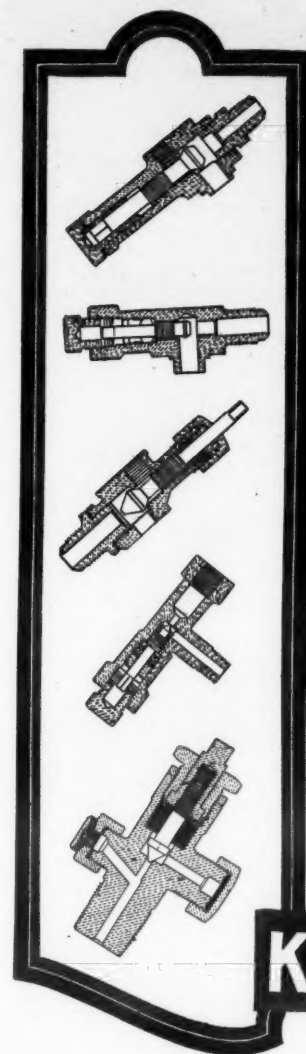
Electric refrigeration equipment is called for in the specifications for the new hospital to be built in Framingham, Mass.

Electric refrigeration will be installed in the 24-family \$300,000 apartment hotel building to be built by Adolph Perlroth on Whitney Avenue, New Haven, Conn.

Plans for a wholesale produce and fruit market, to be built for Sosnowitz & Lotstein, of Stamford, Conn., call for electric refrigerating equipment.

The Kelvinator Shops, Inc., of Tarrytown, N. Y., are installing twenty-six units in the Meadow Brook apartments in Bronxville, and sixty-eight units in the new Towers development in Lawrence.

Voice Over Telephone—John, come home right away. I've mixed the plugs in some way, the radio is all covered with frost, and the electric ice-box is singing, "Schultz Is Back Again!"—*Rutgers Chanticleer*.



*A solution to
your valve troubles*

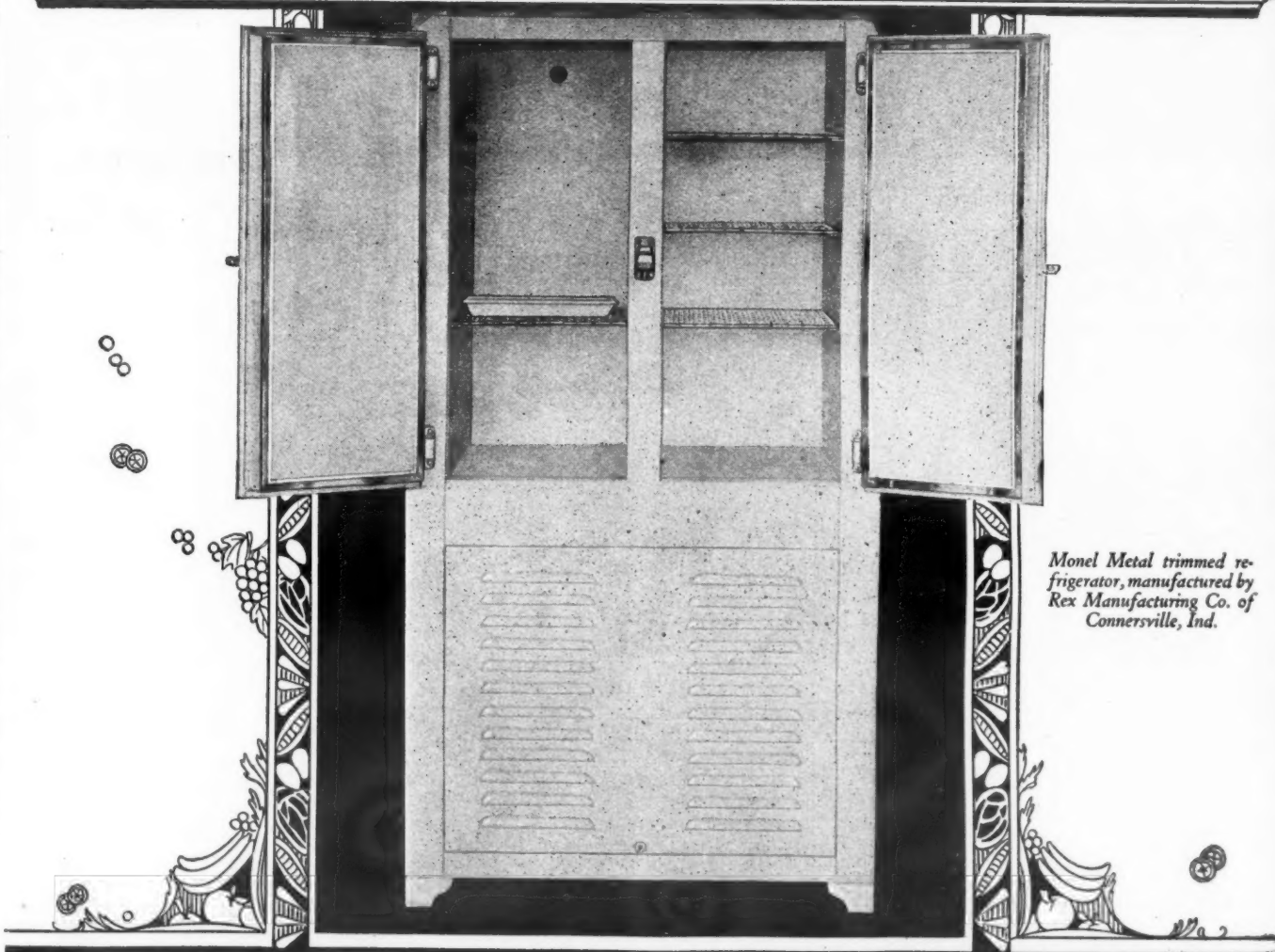
**FORGED OR DIE CAST BRASS
MECHANICAL
REFRIGERATION**

Shut off and Cylinder
Valves of Quality
in Standard Designs
or to your specification

KEROTEST MANUFACTURING CO.
Pittsburgh, Pa.

KEROTEST

QUALITY TRIM DENOTES QUALITY THROUGHOUT



Monel Metal trimmed refrigerator, manufactured by Rex Manufacturing Co. of Connersville, Ind.

REX—another high grade refrigerator trimmed with silvery Monel Metal

Electric refrigerator manufacturers have discovered what the public wants—what refrigerator buyers expect in a modern cabinet. This recognition of present market requirements has caused leading manufacturers to trim their refrigerators with Monel Metal, because:

1. It has a permanently bright, attractive surface—it dresses up the refrigerator.
2. Its corrosion-resistance makes it easy to clean and keep clean.
3. It is inherently rugged—hard to dent or scratch.
4. It has no coating to wear off.
5. Its permanently ornamental value helps sell the refrigerator.
6. Last, but not least: It is available in ample quantities in desired dimensions, shapes and forms.

IMPORTANT: Refrigerator buyers now recognize a quality refrigerator by its Monel Metal trim

Monel Metal is a technically controlled Nickel-Copper alloy of high nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company. The name "Monel Metal" is a registered trade mark.

Monel metal

THE INTERNATIONAL NICKEL COMPANY (INC.), 67 WALL STREET, NEW YORK CITY

Automatic Switches

for

ELECTRICAL REFRIGERATION UNITS Household or Commercial

Thermostatic or Pressure Operated

NEAT — COMPACT — RELIABLE — INEXPENSIVE

Made with mechanical contacts employing a new
patented make and break method.

Penn Electric Switch Company

306 12th Street

Des Moines, Ia.

SPECIFY ANSUL SULPHUR DIOXIDE

The Product with a Factor of Safety

ANHYDROUS SULPHUR DIOXIDE

Absolute Protection for Refrigeration

ANSUL CHEMICAL COMPANY
MARINETTE, WIS.

PROPOSED N. Y. SAFETY CODE UP FOR HEARING

(Continued from Page 1, Column 1)

Section 1. The heading of chapter 10 of the Code of Ordinances is hereby amended to read as follows:

Chapter 10

Explosives and Hazardous Trades

[Regulations of the Municipal Explosives Commission]

- Article 1. General provisions.
2. Certificates and permits.
3. Bonds and fees.
4. Manufacture, storage, sale, transportation and use of explosives.
5. Ammunition.
6. Fireworks.
7. Matches.
8. Mineral oils.
9. Inflammable mixtures.
10. Combustible mixtures.
11. Garages.
12. Motor vehicle repair shops.
13. Dry cleaning and dry dyeing establishments.
14. Motor cycle repair shops and storage places.
15. Paints, varnishes and lacquers.
16. Calcium carbide.
17. Gases under pressure.
18. Refrigerating [plants] systems.
19. Nitro-cellulose.
20. Inflammable motion picture films.
21. Distilled liquors and alcohols.
22. Oils and fats.
23. Technical establishments.
24. Wholesale drug stores and drug and chemical supply-houses.
25. Retail drug stores.
26. Miscellaneous.

Section 2. Section 1 of article 1 of chapter 10 of the Code of Ordinances, relating to definitions, is hereby amended by adding thereto a new subdivision 33 to read as follows:

33. Refrigerating system, a combination of apparatus in which a refrigerant is circulated for the purpose of extracting heat.

(a) The parts of the system are the compressor, generator, condenser, absorber, receiver, shell type or tube type apparatus, pipes, vessels, or other parts, containing refrigerant.

(b) Direct refrigeration, a system in which the refrigerant absorbs the heat directly from the material or space to be cooled.

(c) Indirect refrigeration, a system in which brine cooled by the refrigerant absorbs the heat from the material or space to be cooled.

(d) Refrigerant is the chemical agent other than brine used to produce refrigeration.

(e) Irritant refrigerant, any refrigerant which when breathed attacks the throat or lungs.

(f) Hydrocarbon refrigerants, any refrigerant of the hydrocarbon class.

(g) Flammable refrigerant, any refrigerant which will burn or explode when mixed with certain proportions of air.

(h) Refrigerating machinery room, a room in which is located a refrigerating system containing refrigerant, but not including expansion coils when located in cold storage rooms or expansion coils when located in refrigerator boxes.

(i) Factor of safety, the multiple five (5), the product of which and the working pressure, constitutes the probable rupture pressure.

(j) Pressure imposing element, that apparatus which draws the refrigerant from the low pressure or low temperature side of the system and discharges it into the high pressure or high temperature side of the system.

(k) Pressure limiting device, a pressure responsive mechanism for automatically stopping the operation of the pressure imposing element.

(l) Brine, a liquid used as a medium for the indirect transmission of cold produced by a refrigerating system.

(m) Pressure relief device, a pressure relief valve or a rupture member or other approved device or means of relieving the pressure.

(n) Pressure relief valve, a valve held shut by a spring or other means to automatically relieve pressure in excess of the allowable working pressure.

(o) Rupture member, a device that will automatically rupture at a pre-determined pressure.

(p) Liquid receiver, a vessel permanently connected to a system by inlet and outlet pipes for storage of liquid refrigerant.

(q) Container, a cylinder for the shipment of refrigerant constructed to conform to the regulations of the Interstate Commerce Commission.

(r) Mixer, a vessel or device in a system for mixing the ammonia or other soluble vapor with water.

(s) Stop valve, a manually operated valve to prevent the flow of refrigerant through a pipe.

(t) Service valve, a valve in a Class C system to cut off the escape of the refrigerant from the system during repair or replacement.

(u) Public buildings, business buildings, and residence buildings are buildings as so defined by section 70, article 4, of the Building Code of the city of New York.

Section 3. Subdivision 35 of Section 43 of article 3, chapter 10 of the Code of Ordinances is hereby amended to read as follows:

35. Refrigerating [plants] systems: [capacity of 10 tons or less...\$ 5.00 New capacity of 10 tons to 50 tons \$10.00 New capacity of over 50 tons....\$20.00 New

Except as above provided, fees for permits shall be fixed by the fire commissioner.]

Class A systems.....\$20.00
Class B systems.....\$10.00
Class C systems.....\$ 5.00

Section 4. Article 18 of chapter 10 of the Code of Ordinances is hereby repealed and a new article 18 substituted therefor, to read as follows:

Article 18

Refrigerating Systems

- Section 216. Permits.
217. Supervision.
218. Classification.
219. Permissible locations.
220. Machinery rooms and ventilation.
221. Open flames and electrical equipment.
222. Design and testing.
223. Piping.
224. Safety devices.
225. Size and setting of safety devices.
226. Location and discharge of safety devices.
227. Operating precautions.
228. Equipment diagrams.

§216. Permits.

(a) Except as hereinafter provided in this article it shall be unlawful to maintain or operate a refrigerating system without a permit.

(b) A permit will not be required for a class C system when installed or used in a residence building or in a tenement house, or in the residence portion of a business building.

(c) No refrigerating system shall be maintained or operated employing a refrigerant other than those specified in this article without a permit issued upon such conditions, consistent with the provisions of this article, as are deemed by the fire commissioner necessary in the interest of public safety.

(d) Every person who installs a refrigerating system requiring a permit shall within forty-eight hours after such installation furnish a statement to the fire commissioner, containing the name of the person for whom the system is installed and the place of location of the system.

(e) No refrigerant shall be used in the system other than that specified in the permit. A new permit must be obtained before substituting another refrigerant.

(f) Refrigerating systems of such peculiar construction that the provisions of this article for machines of standard arrangement cannot be applied, may be maintained and operated subject to such conditions as are deemed necessary by the fire commissioner in the interest of public safety.

§217. Supervision.

(a) No refrigerating system containing more than fifty (50) pounds of refrigerant shall be maintained or operated in any building except under the personal supervision, direction or control of either a duly licensed engineer or a person who has obtained a certificate of fitness to operate such a system from the police department. Where the system contains not more than 200 pounds of refrigerant and is fully automatic only one qualified operator will be required.

(b) No class C system as hereinafter permitted for exhibition or demonstration purposes shall be maintained or operated except under the personal supervision, direction or control of either a duly licensed engineer or a person who has obtained a certificate of fitness to operate such system from the police department.

§218. Classifications.

(a) The total amount of refrigerant common to a system operating through one or more evaporators, shall be considered the capacity of the system and determine its class.

(b) A class A system is a system containing one thousand (1,000) pounds or over of refrigerant, or capable of thirty (30) tons capacity or over.

(c) A class B system is a system capable of less than thirty (30) tons capacity, or containing less than one thousand (1,000) pounds of refrigerant and over the amounts provided for in a class C system.

(d) A class C system is a system containing not more than twenty (20) pounds of refrigerant.

§219. Permissible locations.

(a) No class A or class B systems shall be installed in any public building as defined by section 70, article 4, of the Building Code, until plans have been filed with and approved by the fire commissioner, and no refrigerant shall be placed in the system until a permit has been obtained from the fire commissioner.

(b) Unless as hereinafter specified, the direct method of refrigeration shall not be used in any building, whether a permit is required or not for installation therein, outside of the refrigerating machinery room.

(c) The direct method of refrigeration may be used in buildings used exclusively for ice making, or in buildings used exclusively for refrigerating purposes, or when not carried above the first floor in business

buildings, or in the business section of business buildings, provided the entire system is confined to one floor occupied by a single tenant, or in the business section of a residence building when not carried above the first floor, or in any building provided a non-irritant and non-inflammable refrigerant is used.

(d) No brine shall be used in any system that will generate flammable vapor at a temperature below 100° Fahrenheit when tested in a Tagliabue open cup tester, and no refrigerant shall be used as a brine.

(e) No class A system using ammonia shall be installed or maintained in any building above the first floor level unless such building is used exclusively for ice-making or refrigerating purposes.

(f) Exhibition or demonstration of any system containing more than ten (10) pounds of refrigerant shall be prohibited in exhibition halls and such systems shall be of the self-contained type and shall not be charged or discharged while the public is admitted.

(g) No refrigerating system in which an irritant or a flammable refrigerant is used shall be installed or maintained in any building or parts of buildings used as a theatre, motion picture theatre, hospital, asylum, dance hall, court house, police station, jail, passenger depot or school, unless the room or rooms containing the refrigerating system are cut off from the building or parts of the building by unpierced fireproof construction.

(h) An intermittent absorption type of refrigerating machine shall not be permitted in a class A system. Such a type of machine shall be permitted in a class B system only when a heating medium of low pressure steam is used in its operation.

(i) The use of methyl and ethyl chloride or hydro-carbon refrigerants will not be permitted in class A systems.

(j) A class B system using ethyl chloride or a hydrocarbon refrigerant shall not be installed or maintained in the borough of Manhattan or in other built up sections of the city. Elsewhere, it shall be installed

or maintained only in a fireproof building of not more than one story in height, and shall be located on the ground floor, which shall be of unpierced fireproof construction. The refrigerating machinery room shall be cut off from the rest of the building by unpierced fireproof walls of not less than eight (8") inches of brick or six (6") inches of reinforced concrete. Direct exit therefrom leading to the open air and not to any other part of the building shall be maintained and shall be provided with vapor-tight, self-closing fireproof door or doors.

§220. Refrigerating machinery rooms and ventilation.

1. Refrigerating machinery rooms

(a) All refrigerating machinery rooms in which an irritant refrigerant is used, shall be maintained vapor-tight, except as to openings leading directly to the outer air.

(b) All doors in refrigerating machinery rooms, in which an irritant refrigerant is used and which opens to other parts of the building shall be self-closing and so close fitting as to prevent the passage of vapor and shall be kept closed at all times except during entrance or exit. All other openings that may permit the passage of vapor to other parts of the buildings shall be vapor-tight and kept closed. No openings from elevator shafts shall be permitted in the refrigerating machinery room. This provision, however, shall not apply to dumbwaiter shafts the door openings of which are protected with self-closing fire doors.

(c) In class A and class B systems in which an irritant refrigerant is used, the doors of the refrigerating machinery rooms shall open outwardly.

2. Ventilation

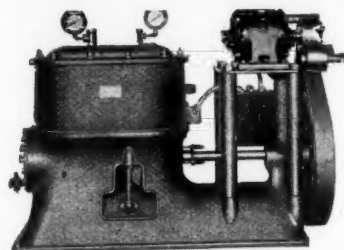
(a) Each class A, B and C refrigerating machinery room of any system shall be independently provided with means for adequate ventilation to the outer air. The ventilation shall consist of a window or windows opening directly to the open air, or mechanical means capable of exhausting

the foul air from the room.

(b) When a window or windows are used, if placed in opposite walls so as to provide a through air circulation to the outer air, a total area of inlet and outlet, respectively, of not less than that specified in column D of the table in paragraph (d) shall be provided. When a window or windows are placed in one wall a total area shall be provided not less than that specified in column E of the above mentioned table.

(c) When mechanical means are used they shall consist of a power driven exhaust fan of the enclosed cased blower type which shall be capable of removing

(Continued on Page 7, Column 1)



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You need the PEERLESS line of commercial units.

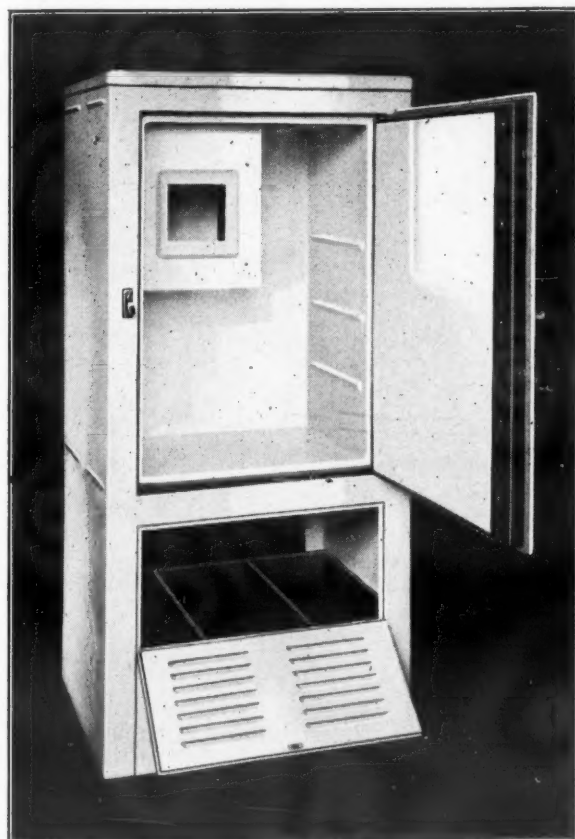
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(Continued from Page 6, Column 5)

from the refrigerating machinery room the amount of air specified in column B of the table in paragraph (d). The inlet to the fan shall be located near the refrigerating equipment. The outlet from the fan shall terminate not less than six (6) feet above the sidewalk and in no case under a stairway or fire escape. Where air ducts are used on either the inlet or discharge side of the fan they shall each have an area not less than that specified in column C of the above mentioned table. Sharp bends in the run of the ducts shall be avoided. The control for such mechanical means of ventilation shall be easily accessible and located outside of the refrigerating machinery room.

(d)

Pounds of Refrigerant in System	Mechanical Cu. Ft. per Minute Discharge	Mechanical Sq. Ft. Duct Area	Window Area in Sq. Ft. for Each Opposite Side	Window Area in Sq. Ft. for One Side Only
A	B	C	D	E
Up to 20	150	1/4	1 1/2	6
20	250	1/4	1 1/2	12
50	400	1/2	2 1/2	16
100	550	3/4	2 1/2	19
150	680	1	3	23
200	800	1 1/4	3 1/2	29
250	900	1 1/2	4	32
300	1,100	1 3/4	4 1/2	38
400	1,275	1 3/4	5	42
500	1,450	1 3/4	6	45
600	1,630	1 3/4	6 1/2	48
700	1,800	2	7	51
800	1,950	2	7 1/2	55
900	2,050	2	8	59
1,000	2,350	2 1/4	9	68
1,250	2,800	2 1/2	11	78
1,500	3,150	3	12 1/2	87
1,750	3,500	3 1/2	14	95
2,000	4,150	4	16	113
2,500	4,500	4 1/2	18	130
3,000	5,000	5	24	167
4,000	6,000	6	30	204
5,000	7,500	7 1/2	36	241
6,000	9,000	9	42	278
7,000	10,500	10 1/2	48	315
8,000	12,000	12	52	342
9,000	13,000	13	56	360
10,000	14,000	14	68	425
12,000	17,000	17	76	470
14,000	19,000	19	86	540
16,000	22,000	22	92	580
18,000	24,000	24	100	630
20,000	26,500	26	121	760
25,000	33,000	33	142	870
30,000	39,000	39	155	940
35,000	44,000	44	176	1,060
40,000	51,000	51	190	1,120
45,000	56,000	56		

(e) Where a non-irritant or non-flammable refrigerant is employed, the requirements as given in table (d) may be reduced by one-half. When air is employed as the refrigerant no ventilation shall be required.

(f) In lieu of mechanical means of ventilation in refrigerating machinery room or rooms where a class A system or a class B system using ammonia is installed, a water deluge may be provided which shall consist of a sprinkler system having open heads of not less than one-quarter (1/4") inch orifice spaced not more than eight feet apart in any direction, and such system shall be located above all the refrigerating apparatus and piping in the refrigerating machinery room. Not more than one head shall be installed on a 3/4-inch pipe; five heads on a 1-inch pipe; six heads on a 1 1/4-inch pipe. The deluge system shall be permanently connected with the main house supply or other assured source from which a constant water pressure of not less than twenty pounds per square inch can be maintained on the inlet side of the main control valve or valves at all times. The control valve or valves for such water deluge system shall be manually operated, easily accessible and shall be labeled and located outside of the refrigerating machinery room.

§221. Open flames and electrical equipment.

1. Open flames
No fire, flame or arc light will be permitted in a class A or B refrigerating machinery room in which a flammable refrigerant is used.

2. Electrical equipment
(a) No electrical equipment except the motors and switchboards necessary to operate the machinery shall be permitted in a class A or B refrigerating machinery room using a flammable refrigerant. All starting equipment including switches, automatic starters, and the like shall be of the oil immersed or enclosed type.

(b) An emergency switch controlling all of the refrigerating machinery shall be located outside of the refrigerating machinery room where it can be quickly and speedily reached and operated in cases of necessity for all class A and class B systems.

(c) Where the operating mechanism in any system is dependent upon electrical control, such control in a pressure limiting device shall be on a closed circuit and the wiring and devices shall be installed and maintained in a manner satisfactory to the Fire Commissioner.

§222. Design and testing.

(a) Every part of any refrigerating system, except pressure gauges and control mechanism, shall be designed for a probable rupture pressure of at least five times the following working pressures:

Refrigerant	High Pressure Side	Low Pressure Side
Carbon dioxide	1,000	750
Ethane	700	520
Ammonia	200	150
Propane	170	115
Methyl chloride	170	55
Sulphur dioxide	70	55
Isobutane	60	45
Butane	50	35
Ethyl chloride	20	15
Dichloromethane	5	8
Dichloroethylene	5	8
Trichloroethylene	8	8

(b) Class A and B systems shall be tested to one and one-half (1 1/2) times the pressures given in the above table and proved tight before being put into use and thereafter as may be determined necessary by the fire commissioner; the testing medium shall be either air, carbon dioxide or water. Air used for testing shall not exceed 130° F.

(c) In class C systems higher pressures than those specified in paragraph (a) shall be permitted, provided they are designed and tested in accordance with paragraphs (a) and (b).

§223. Piping.

1. Piping
(a) All piping, liquid receivers or vessels containing the refrigerant, shall be supported on or by strong, durable and incombustible materials. This provision shall not apply to class C installations.

(b) The arrangement of stop valves, relief devices, etc., shall be as shown on the piping diagram for class A and class B systems in section 228.

(c) Every system except those charged at the place of manufacture to which a container may be connected for charging shall have such connection located on its low pressure side.

2. Gauge glasses

(a) Liquid level gauge glasses on pressure systems, except those of the bull's eye type, used in class A or class B systems shall have automatic closing shut-off valves and such glasses shall be protected against injury. The protection shall consist of having the gauge glasses enclosed in metal casings with longitudinal slots in two opposite sides. The walls of the casing shall be at least one-sixteenth (1/16") inch thick, and shall be so supported that impacts on the casing will not be liable to be transmitted to the glass.

§224. Safety devices.

1. Construction and marking

(a) Pressure relief and pressure limiting devices shall be made of materials suitable for the refrigerant employed, and their working parts shall be non-corrodible and they shall be set, marked and sealed by the manufacturer. The marking shall show the pressure at which the pressure relief and pressure limiting devices will function.

(b) Pressure relief valves, pressure limiting devices and rupture members shall be designed, constructed and set to prevent the pressure exceeding the pressure for the various refrigerants as specified in section 225, 2.

2. Use of stop valves

(a) No stop valve shall be located between a pressure relief device or pressure limiting device and the part of the system protected thereby, unless two pressure relief devices of required size are used, and so arranged that only one pressure relief device can be cut off for repair purposes at any one time.

(b) A class B system in which no stop

valves are used and in which the pressure will equalize throughout the system when the pressure imposing element is not in operation may be protected by only one pressure relief device located on the high pressure side.

3. Ammonia mixer

(a) The low pressure side of a class A ammonia system shall be provided with a hand-operated valve for discharging the ammonia into water through a mixer to the sewer in case of emergency.

(b) The ammonia mixer shall be constructed of steel and shall be capable of withstanding a pressure of at least fifty (50) pounds per square inch.

(c) No valve shall be located in the ammonia emergency discharge line except the manually operated valve discharging into the water and ammonia mixer, but there may be one stop valve located inside the building for repair purposes only. This valve shall be sealed open and labeled "Keep Open."

(d) The manually operated pressure relief valve shall be located in a locked box which can be opened by members of the Fire Department by means of a Fire Department key. The door of the box shall be on the public thoroughfare side of the building in an easily accessible location and not less than eighteen (18) inches or more than five (5) feet above the sidewalk level. The box shall be permanently labeled, having letters of not less than one (1) inch reading "For Fire Department Use Only." The relief valve shall be labeled "Ammonia." A sign shall be posted within the box reading "Do Not Open Valve Until Water is Flowing."

(e) A single standard three (3) inch fire department connection shall be provided through which the necessary water may be supplied to the mixer. The fire department connection shall be located near the box and not less than eighteen (18) inches or more than twenty-four (24) inches above the sidewalk level and shall be permanently labelled, having letters not less than one (1) inch high reading "To Ammonia Mixer." A check valve so set

as to prevent gases from reaching the fire department connection shall be installed in the water line between the fire department connection and the water and ammonia mixer.

(f) The fire department shall have sole use of the mixer and supply the necessary water.

(g) The size of ammonia piping and valves required for mixer:

1,000 to 1,800 pounds of ammonia	3/4" pipe and valve.
1,800 to 3,000 pounds of ammonia	1" pipe and valve.
3,000 to 5,250 pounds of ammonia	1 1/4" pipe and valve.
5,250 to 7,500 pounds of ammonia	1 1/2" pipe and valve.
7,500 to 13,500 pounds of ammonia	2" pipe and valve.
13,500 to 27,000 pounds of ammonia	3" pipe and valve.

(h) In systems using over twenty-seven thousand (27,000) pounds of ammonia there shall be provided one additional water and ammonia mixer for each twenty-seven thousand (27,000) pounds of ammonia or fraction thereof so used in excess.

(i) The ammonia mixer and its connections for a Class A System shall conform to the diagram in Section 228.

§225. Size and setting of safety devices.

1. Size

(a) The size of pressure relief valves shall be as follows:

Capacity of System	CO ₂ and Ethane, No. Req., Size	Other Refrigerants, No. Req., Size
Up to 30 tons	1-1/2"	1-1/2"
30 to 60 tons	1-1/2"	1-1/2"
60 to 100 tons	1-1/2"	1-1/2"
100 to 175 tons	1-1/2"	1-1/2"
175 to 250 tons	1-1/2"	1-1/2"
250 to 450 tons	1-1/2"	1-1/2"
450 to 900 tons	1-1/2"	2-2"

(b) Where rupture members are permitted and used, the equivalent area of the relief valve specified must be provided.

2. Setting of safety devices

(a) The setting of pressure relief valves, pressure limiting devices and rupture mem-

bers shall not exceed the pressure as given in the following table:

Refrigerant	High Pressure Side		Low Pressure Side
	Water Cooled Lbs.	Air Cooled Lbs.	
Carbon dioxide	1,430	1,870	1,000
Ethane	855	1,240	900
Ammonia	270	335	200
Propane	235	310	170
Methyl chloride	145	195	100
Sulphur dioxide	100	130	70
Isobutane	85	115	60
Butane	55	75	50
Ethyl chloride	30	45	20
Dichloromethane	12	12	8
Dichloroethylene	12	12	8
Trichloroethylene	12	12	8

§226. Location and discharge of safety devices.

1. Location

(a) All class A and B systems shall be provided with a pressure limiting device to stop the action of the pressure imposing element at a pressure less than those specified in Section 225, 2.

(b) All class C systems of the water cooled type shall be provided with a pressure limiting device to stop the action of the pressure imposing element at a pressure less than those specified in Section 225, 2.

(c) Each compressor or generator of a class A or B system shall be protected by a relief valve connected into the high pressure side between the main stop-valve and the compressor or generator to relieve excessive pressure into the low pressure side of the system or to the atmosphere.

(d) A rupture member may be substituted for the relief valve in CO₂ systems or systems operating below atmospheric pressure.

(e) Shell type apparatus such as liquid receivers, condensers, evaporators, liquid separators and absorbers of class A and class B systems, which can be shut off by stop-valves shall each be equipped with a pressure relief valve, discharging as hereinafter provided.

(f) Class C systems so constructed that, when subjected to an abnormal outside

(Continued on Page 8, Column 3)



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Saint Paul, Minnesota

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JULY 20, 1927

Accurate Statistics Needed

The following letter received from R. H. Macy & Company, New York department store, is typical of numerous inquiries regarding the past development, present status and future prospects of the electric refrigeration industry:

"We should like very much to find out through you the number of electric refrigerators manufactured and sold in 1926 and the first six months of 1927. We are interested only in the units used in the home and if possible should like to have the data divided into remote installations and installations complete with the box.

"We would also appreciate your finding out for us the number of non-electric refrigerators manufactured and the number sold for the same length of time. In addition to this information would you be kind enough to give us your opinion as to whether or not electric refrigeration is affecting in any way the sale of refrigerators. Also whether or not you think electric refrigerators can be successfully sold in department stores whose policy is strictly cash."

Promoters Overly Optimistic

Requests for statistics are prompted by a variety of interests in the business. A year or two ago investment bankers were endeavoring to obtain figures on which they might base floatations of stock and bond issues. The meager information obtainable at that time was of little value and the tendency was to depend upon promoter's estimates of future possibilities. Most of the estimates were entirely too high.

During the same period advertising agencies and merchandising counselors were seeking data which might be used to justify sales quotas and advertising appropriations. Again the tendency was to take a liberal view of the possibilities.

With the approach of 1927, and as the new factory buildings of the leading companies neared completion, statements were issued freely indicating enormous production programs and predicting sales far in excess of the total sales in all previous years. Exaggeration seems to have become a habit.

Optimistic estimates may serve a purpose in exciting interest in the business possibilities of a new industry. It is claimed by some that a certain amount of exaggeration is necessary nowadays in order to get attention. It is argued that the public discounts all claims anyway. If such be the case, it would appear that many failed to use a proper discount in evaluating the claims of some promoters.

Big Buyers Want the Facts

We have now reached the stage where distributing organizations, such as Macy's, with facilities for handling a substantial volume of business, are seeking figures which will enable them to gauge the possibilities of electric refrigeration from a consumer-sales viewpoint. Such organizations want the facts. They want to buy in quantities, but they also want to sell what they buy. They cannot afford to over-estimate the potential demand.

ELECTRIC REFRIGERATION NEWS believes that the time has arrived when the best interests of the industry will be served by the regular publication of accurate figures on current production and sales.

Electric refrigeration represents a fundamental need. Its future is not dependent upon whim or caprice, nor is it the creation of a passing fad or fancy. The public must always have food and that food must be protected from spoilage. The refrigeration machine, located at the point where food is consumed, has provided a real and vital service heretofore lacking. It is not a substitute for other methods; it is the only completely satisfactory method yet discovered, and electricity offers the most convenient and flexible form of power for the operation of such equipment. The truth about electric refrigeration should be sufficient.

An Aid to Stabilization

Millions of dollars have been poured into the development of electric refrigeration. Some time may be required to make the first turnover of invested capital. The sooner there is an adequate realization of the problems involved in making and marketing electric refrigeration equipment on a profitable basis, the sooner will manufacturers, distributors and dealers be able to solve these problems and secure the profits which are rightfully due them.

Accurate figures on current production and sales, with such figures properly segregated into types and varieties of equipment, as suggested in the Macy inquiry, will be of tremendous value to the industry. Such figures will assist in avoiding reckless over-production with the inevitable loss of confidence, as well as money, on the part of distributors, dealers, and investors.

ELECTRIC REFRIGERATION NEWS will gladly provide the facilities which may be necessary to supplement the work of established fact-finding agencies. Expressions of opinion regarding the desirability and the feasibility of this proposal are invited.

Patent Record Completed

On the next page will be found the final installment of the record of electric refrigeration patents. On account of the large volume of this data it was necessary to publish parts of it in seven issues of the paper. The dates of these issues, and the sub-classifications given in each, are listed for the reader's convenience in locating subject matter.

This record provides basic information which will materially reduce the time required to obtain official data on any particular subject. Collectively, the record gives some indication of the years of effort and the enormous amount of inventive energy which have been devoted to the development of refrigeration equipment.

DENVER DELICATESSEN SAYS ELECTRIC COLD STOPS FLY NUISANCE

Costs Less Than Ice and Is Far More Satisfactory

By John Girdler

Melvin Strauss, delicatessen dealer at 1524-26 Curtis Street, Denver, Colorado, uses a one-ton York refrigeration machine, from which coils are run through the display counters.

"I believe I am the only delicatessen dealer in Denver who uses this method," said Mr. Strauss, "but if they all knew the satisfaction connected with it they would soon install some form of electric refrigeration. Of course, pickles are not apt to spoil in a hurry. Baked ham will stay baked without freezing. Potato salad will sell even if not cold, but, the fastidious customer will be more likely to buy things that look crisp and cool, and in this day and age everyone knows the advantages of refrigeration in the preservation of food products."

"These things are all arguments in favor of the coldest refrigeration possible," continued Mr. Strauss, "but to my mind a more important consideration than these is that electric refrigeration reduces the fly nuisance. It is much easier to keep them away, for they do not like cold. They even avoid the tops of the cases because of the escaping cold. This increases our display space, for we can keep many things on top of the refrigerated cases that we could not display if the show cases were only cooled to an ordinary cold temperature by ice. Food attracts flies. There has never been any way devised to entirely get rid of this pest. Electric refrigeration comes nearer to solving the problem than anything we have found."

"Figuring a liberal depreciation," said Mr. Strauss, "we believe that it is cheaper for us to cool by electricity than with ice. So far as results are concerned, we would use our present method if we knew it cost far more than ice."

PROPOSED N. Y. SAFETY CODE UP FOR HEARING

(Continued from Page 7, Column 5)

temperature such as that generated in a fire, they may burst, due to the expansion of the refrigerant, shall be protected by a pressure relief device.

2. Discharge of safety valves

(a) Where ammonia is used in class A systems, the discharge from relief valves must be conducted to the outside atmosphere or into that part of the low pressure side protected by the mixer as specified in Section 224, 3. If it is discharged to the outside atmosphere it must be piped above the roof or not less than 12 feet above the grade. The discharge pipe shall be not less than the size of relief valve outlet. The discharge from more than one relief valve may be run into a common header, the area of which shall be equal to the area of the pipes connected thereto. The outlet orifice shall be turned downward.

(b) Where ammonia is used in a class B system the discharge from relief valves shall be pipes to the outside atmosphere as specified for class A systems, or to the low pressure side as shown in diagrams in Section 228, or into a tank of water which shall be used for no purpose except ammonia discharge. At least one gallon of fresh water shall be provided for every pound of ammonia contained in the system. The water used shall be prevented from freezing without the use of salt or chemicals. The tank shall be substantially constructed of not less than one-eighth (1/8) of No. 11 U. S. gauge iron. No horizontal dimension of the tank shall be greater than one-half (1/2) the height. The tank shall have a hinged cover, or if of the enclosed type, shall have a vent hole at the top. All pipe connections shall be through the top of the tank only. The discharge pipe from the pressure relief valves shall discharge the ammonia in the center of the tank near the bottom. The tank shall be as securely supported as any other portion of the system. There shall be no opening in the tank below the water level.

(c) Where refrigerants other than ammonia are used the discharge from relief valves shall be to the atmosphere as specified for class A ammonia systems. Carbon dioxide may be discharged into the room if same contains at least 10 cubic feet of capacity per pound of refrigerant used.

(d) Arrangements of pressure relief devices for class A and B systems shall conform to the diagrams in Section 228.

227. Operating precautions.

1. Masks and helmets

(a) In a class A system which operates above atmospheric pressure there shall be provided at least two helmets or masks.

(b) In a class B system in which more than fifty (50) pounds of ammonia, sulphur dioxide or other irritant refrigerant is used, there shall be provided at least one helmet or mask.

(c) Only helmets or masks that have been approved by the United States Bureau of Mines as suitable for the refrigerant employed shall be used, and they shall be kept in operative condition in an easily accessible case or cabinet located immediately outside the refrigerating machinery room.

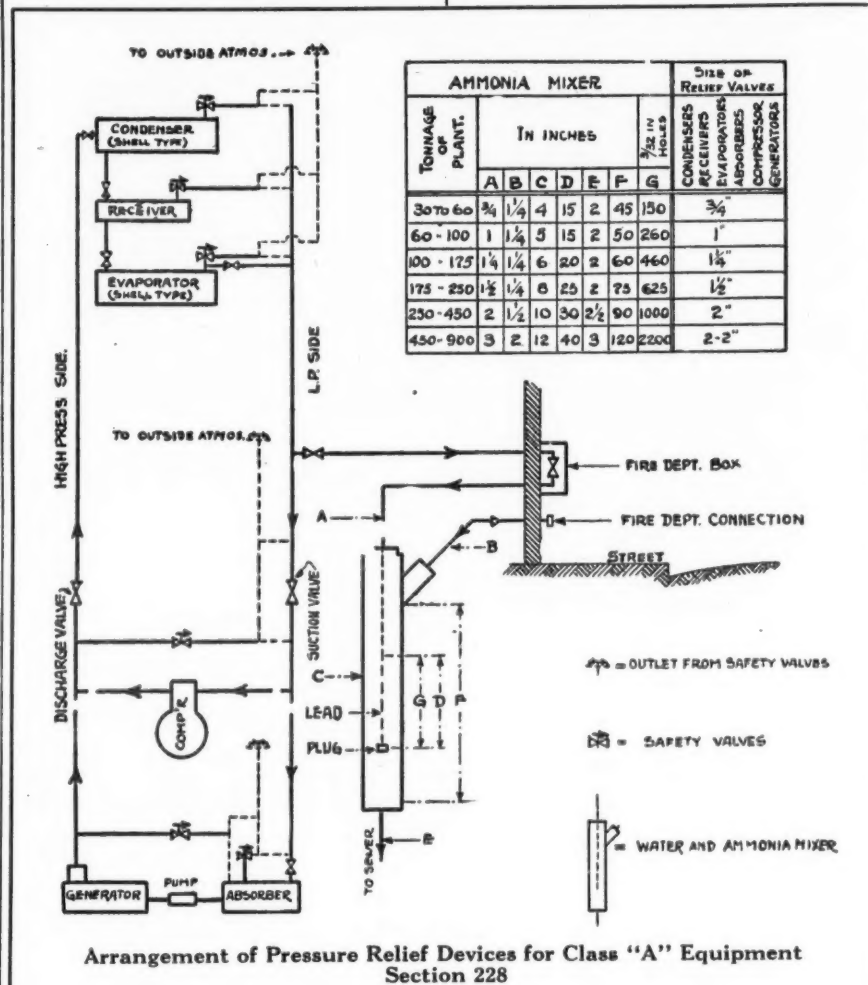
Pioneer in Delco Company Office Now Successful Distributor in Fort Worth, Texas

The P. M. Bratten Company of Fort Worth, Texas, West Texas distributors for Frigidaire and Delco systems, held open house at their newly established downtown retail store at 214 West Seventh Street, recently. The new show and salesroom is one of the finest of its kind in the South, having been carefully designed and laid out to give every possible convenience to the retail trade. The exterior of the building is finished after the Spanish motif type of construction while the interior decorations are of soft green tones.

The growth of the P. M. Bratten Company follows closely the rise of the Frigidaire. Although still young in years—being only 33—Mr. Bratten has often shown his executive ability. He was employee No. 2 in the organization formed to distribute Delco lighting systems, and R. H. Grant, now vice president of the Chevrolet division of the General Motors Corporation, was his chief. Two years later he was appointed advertising manager, later giving up this position to enter the distributing field.

The firm is handling sales and service for approximately half of the state in addition to a portion of Oklahoma. One of its chief outlets to customers is through the public utility companies. Among these, the West Texas Utilities of Abilene, is selling Frigidaires in 102 towns; the Texas Electric Service Company of Eastland and Wichita Falls, 15 towns; the Central Power and Light Company of Childress, 9 towns; and the Southwestern Public Service Company of Amarillo, 5 towns. In addition to these dealers, there are 35 other regular dealers who reach the trade.

Officers of the Bratten company in addition to Mr. Bratten are: L. M. Van Vleck, vice president; Paul Anderson, sales manager; D. P. Anderson, secretary-treasurer; W. G. Jennings, division manager of Panhandle division, Amarillo; W. H. Smith, manager Delco division; and S. C. Claiborne, service manager. C. W. Laney is manager of the new retail store and will have a sales force of nine working under his supervision.



Arrangement of Pressure Relief Devices for Class "A" Equipment Section 228

2. Signs

(a) On class A and class B systems containing more than fifty (50) pounds of refrigerant there shall be painted on and affixed in a permanent manner to the main steam control, main and remote electrical control switches, receivers, containers, shell type coolers, signs having letters not less than one and one-half inches (1 1/2") high, designating the part and refrigerant contained therein.

(b) On systems containing fifty (50) pounds or less of refrigerant there shall be painted on or affixed in a permanent manner a sign designating the number of pounds and kind of refrigerant contained in the system.

(c) In all refrigerating machinery rooms of a class A or class B system there shall be permanently and conspicuously posted one or more copies of a set of rules designating the proper action to be taken in case of fire or other emergency.

3. Storage of Refrigerant

(a) Refrigerant not contained in the refrigerating system shall be stored only in containers conforming to the regulations prescribed by the Interstate Commerce Commission for the transportation of such refrigerant.

(b) Only two containers holding not more than a total of three hundred (300) pounds of refrigerant shall be stored in the refrigerating machinery room of a class A system.

(c) Only one container holding not more than one hundred and fifty (150) pounds of refrigerant shall be stored in the refrigerating machinery room of a class B system.

(d) In a class C system no refrigerant other than that used in the system shall be stored in the refrigerating machinery room.

(e) If a greater amount of refrigerant is desired other than that permitted in a refrigerating machinery room, it shall be stored in a fireproof building or enclosure used for no other purpose.

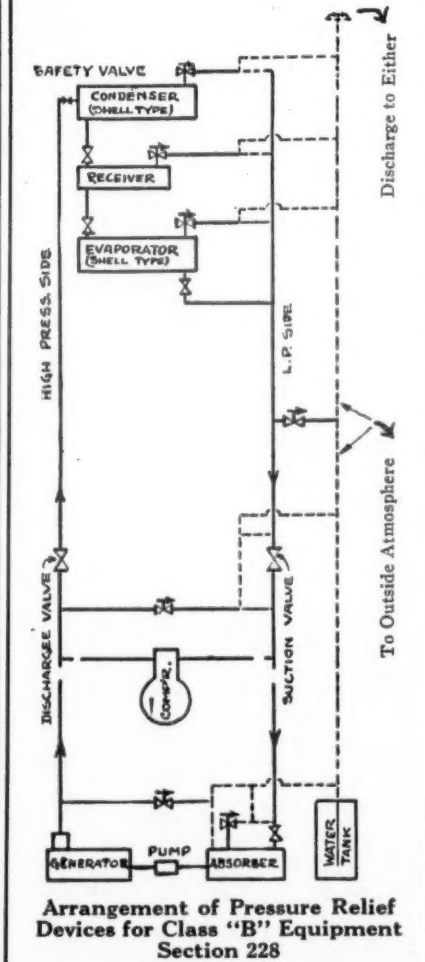
(f) When the refrigerant is withdrawn from a system it shall be discharged only into a suitable absorbent or containers conforming to the regulations of the Interstate Commerce Commission for the transportation of such refrigerant. No refrigerant shall be permitted to escape into the refrigerating machinery room.

(g) Containers shall not be connected to the system except during period of charging or withdrawing the refrigerant.

228. Equipment diagrams.

1. Arrangement of equipment for a class A system. (Diagram above.)

2. Arrangement of equipment for a class B system:



Arrangement of Pressure Relief Devices for Class "B" Equipment Section 228

Section 5. This ordinance shall take effect immediately. Referred to Committee on General Welfare.

Electric Refrigeration Patents

A Classified Record of All Refrigeration Patents Issued Up to January 1, 1927—Seventh Installment

Following is the seventh and final installment of the record of all electric refrigeration patents issued up to January 1, 1927, together with a list of the sub-classifications which have been published in previous issues of ELECTRIC REFRIGERATION NEWS. The U. S. Patent Office puts all patents pertaining to refrigeration in Class 62, which is in turn divided into 178 sub-classes.

First Installment, March 2:

Sub Class 1—Miscellaneous—Refrigerating means not otherwise classifiable.

Sub Class 2—Automatic Control—Refrigerating apparatus having means for regulating temperature, etc., independent of manual control.

Sub Class 3—Automatic Control, Compressor—Control Condenser-Expander Circuit—Automatic control apparatus in which a gas passes through a compressor into a condenser and then into an expander, such as an expansion coil, where the condensed gas absorbs heat and passes again into the compressor.

Sub Class 4—Automatic Control, Compressor-Condenser-Expander Circuit, Motor Control—Automatic control compressor-condenser-expander circuits in which the motor for operating the compressor is controlled according to conditions of temperature or pressure in the circuit or in the chamber to be cooled.

Sub Class 5—Automatic Control, Still Circuit—Automatic control apparatus comprising a still (heated vaporizer) for generating a gas, means for cooling the gas, an expander for the cooled gas, and means for finally returning the gas to the still, either with or without a separate absorber.

Sub Class 6—Automatic Control, Chamber Cooler—Automatic control apparatus peculiarly adapted for cooling chambers, rooms, houses, or like inclosures.

Sub Class 7—Automatic Control, Fluid Cooler—Automatic control apparatus particularly adapted to cooling a fluid.

Second Installment, March 16:

Sub Class 8—Automatic Control, Expander—Automatic control apparatus comprising means wherein a liquefied or condensed gas may be increased in volume, the controlling means regulating the evaporation of the condensed gas therein, depending on the temperature or pressure within the expander or the temperature or pressure within the inclosure in which the expander is located. Note—Expanders are usually called "expansion-coils," but they may be of any form.

Sub Class 9—Refrigerators—Miscellaneous refrigerated chambers or compartments of any kind not merely ice cooled and not specifically provided for elsewhere.

Sub Class 10—Refrigerators, Evaporative—Refrigerators consisting of a closed non-porous refrigerating chamber with means for evaporating a liquid in contact with the outer walls of the chambers.

Note—This does not include chambers having means for moistening the interior walls, nor mere evaporating means, nor a mere chamber with specific evaporating means, even although the intention be to use the apparatus as a refrigerator.

Sub Class 11—Refrigerators, Evaporative, Receptacle—Refrigerators consisting of a non-porous receptacle, open at the top, having means for applying water to the outside, which evaporates to cool the receptacle.

Sub Class 12—Refrigerators, Liquefied Gas—Refrigerators cooled by liquefied gas or by the expansion of gas under pressure.

Sub Class 13—Refrigerators, Liquefied Gas, Absorber—Refrigerators cooled by the vaporization of liquefied gas and having an absorber for recovering the gas.

Sub Class 14—Refrigerators, Chemical—Refrigerators provided with special means whereby chemicals may be utilized to produce low temperatures.

Sub Class 15—Refrigerators, Indirectly Cooled—Refrigerators cooled by a liquid that has been cooled by other means.

Sub Class 16—Refrigerators, Air Cooled—Refrigerators cooled by expansion of air in an expander or coil, whether associated with means for expanding air directly in the chamber or not, the air having been first compressed and cooled, or those for admitting air at atmospheric pressure, combined with some specific means for cooling and distributing the air.

Sub Class 17—Refrigerators, Air Cooled, Expansion in Chamber—Air-cooled refrigerators in which air is compressed, cooled, and admitted into the refrigerating chamber to expand therein.

Third Installment, March 30:

Sub Class 18—Refrigerators, Air Cooled, Expansion in Chamber, Expansion Motor—Air-cooled refrigerators having a compressor, a cooler, and an expansion motor from which the air expands into the refrigerating chamber.

Sub Class 19—Refrigerators, Surface Cooler—Refrigerators cooled by a fluid passing through a conduit or casing, which transfers the heat of the refrigerator to the fluid.

Sub Class 20—Refrigerators, Surface Cooler, Liquid Circuit—Refrigerators cooled by means of a surface cooler arranged in circuit with a liquid cooler.

Sub Class 21—Refrigerators, Surface Cooler, Air-Pump Circuit—Surface cooled refrigerators having means for circulating the air of the refrigerator by an air pump.

Sub Class 22—Refrigerators, Surface Cooler, Condenser—Surface cooled refrigerators or chambers in which there is a surface cooler provided with means for removing the condensation collected from the air in the chamber.

Sub Class 23—Refrigerators, Liquid-Contact Cooler—Refrigerators cooled by direct contact of the air of the refrigerator with a cooled liquid.

Sub Class 24—Ice Making Apparatus—Apparatus peculiarly adapted for making ice.

Sub Class 25—Ice Making Apparatus, Freezers—Apparatus adapted in use to the freezing of water into ice.

Sub Class 26—Ice Making Apparatus, Freezers, Spray—Ice freezers in which the liquid is sprayed upon the freezing surface.

Sub Class 27—Ice Making Apparatus, Freezers, Tank—Ice-making apparatus having a tank for liquid peculiarly adapted for freezing the liquid in the tank.

Fourth Installment, April 13:

Sub Class 28—Ice-Making Apparatus, Atmospheric—Apparatus for making ice in cold weather by subjecting water to the atmosphere without artificial cold producing apparatus.

Sub Class 29—Ice-Making Apparatus, Atmospheric, Tank—Atmospheric ice-making apparatus having a specially constructed tank, with means for freezing by the natural cold of the atmosphere, including features involving more than a tank structure.

Sub Class 30—Ice-Making Apparatus, Separator—Ice-making apparatus having means for cutting or separating ice from the freezer.

Sub Class 31—Ice-Making Apparatus, Separator, Heated Cutter—Ice-making apparatus with a heated cutter for a separator.

Sub Class 32—Ice-Making Apparatus, Separator, Can Heater—Ice-making apparatus in which the can or tank in which ice is formed has means for releasing the ice therefrom by heat.

Sub Class 114—Congelation Apparatus—Apparatus for freezing a liquid other than water not otherwise classified.

Sub Class 115—Compressor-Condenser-Expander Circuit—Apparatus for compressing a condensable gas, passing it to a condenser or cooler, then to an expander or expansion coil, where it absorbs heat and is vaporized and returns in a closed circuit to the compressor. Note—This subclass includes the combination of the circuit even though any of the elements are specific.

Fifth Installment, May 25:

Sub Class 116—Compressor-Condenser-Expander Circuit, Refrigerator Type—Refrigerators cooled by a compressor-condenser-expander circuit.

Sub Class 118—Still-Condenser-Expander Circuit—Cooling apparatus having a still for generating a gas, a condenser or cooler for the gas, and an expander or expansion coil for vaporizing the condensed gas by the absorption of heat from the material or chamber to be cooled and means for returning the gas to the still.

Sub Class 119—Still-Condenser-Expander Circuit, Absorber—Cooling apparatus having a still (heated evaporator) condenser, expander, and an absorber for taking up the gas or liquid, all in circuit.

Sub Class 120—Absorbing-Still Condensing-Expander—Cooling apparatus having a still for generating the gas and also acting as an absorber of gas when the expander is performing its cooling function and an expander that acts as a condenser when the still is generating gas.

Sub Class 121—Gas Solidifiers—Apparatus for solidifying gas by low temperatures, with or without pressure.

Sub Class 122—Gas Liquefiers and Separators—Means for liquefying gas or for liquefying and separating gases of different specific gravities by cooling.

Sub Class 123—Gas Liquefiers and Separators, Expansion Motor—Apparatus for liquefying or separating gas by cooling, having a motor in which the gas is expanded.

Sub Class 124—Liquid Separators—Apparatus for separating liquids by cooling.

Sub Class 125—Liquefaction and Expansion—Apparatus not otherwise classified for cooling by the liquefaction and expansion of a gas.

Sub Class 126—Liquefaction and Expansion, Expanders—Apparatus in which a liquefied gas is expanded for cooling purposes.

Sub Class 127—Liquefaction and Expansion, Expanders, Valves—Expanders combined with valves for admitting the liquid to the expander or the structure of the expansion valve itself when not of general application.

Sub Class 128—Air and Liquid Coolers—Coolers for cooling both a gas and a liquid in combination.

Sub Class 141—Liquid Coolers—Apparatus peculiarly adapted for and limited to cooling a liquid.

Sixth Installment, July 6:

Sub Class 142—Liquid Coolers, Ice—Liquid receptacles peculiarly adapted to be cooled by ice and of a structure limited to the use of ice.

Sub Class 143—Liquid Coolers, Ice, Bottle Type—Coolers for liquid in which the liquid is contained in a bottle and limited to apparatus in which ice must be the cooling material.

Sub Class 144—Liquid Coolers, Ice, Barrel—Cooling apparatus peculiarly adapted to be applied to a barrel and in which ice must be used for the cooling medium if the apparatus performs its complete function.

Sub Class 145—Liquid Coolers, Ice, Filter—Liquid coolers having a filter for the liquid and means peculiarly adapted to the use of ice for cooling.

Sub Class 146—Liquid Coolers, Ice, Contact—Liquid coolers limited to the use of ice in which the liquid and ice come in contact.

Sub Class 147—Liquid Coolers, Ice, Tube—Liquid coolers in which the liquid flows through tubes cooled by ice and limited to structure adapted peculiarly for ice.

Sub Class 148—Liquid Coolers, Ice, Flat Plate—Liquid coolers having a hollow flat plate cooled by ice and peculiarly adapted to the use of ice.

Sub Class 149—Liquid Coolers, Ice, Agitator—Liquid coolers using ice and having means for agitating the liquid or the ice or both and peculiar to ice.

Sub Class 150—Liquid Coolers, Expansion Motor—Apparatus limited to the cooling of a liquid by using a gas under compression and using it in an expansion motor for further cooling the gas before the liquid is cooled thereby.

Sub Class 151—Liquid Coolers, Film Plate—Apparatus for cooling liquids by flowing them over a plate, combined with means for cooling the plate while the liquid is flowing over it.

Note—This apparatus is used for freezing water into ice generally by freezing successive films or increments.

Sub Class 152—Liquid Coolers, Vacuum—Apparatus for cooling liquids by removing the air and forming a vacuum in communication with the liquid.

Sub Class 153. Liquid Coolers, Vacuum Hygroscopic

Vacuum liquid-cooling apparatus with means for absorbing the water vapor.

34,018, A. C. Twining.....Dec. 24, 1861
197,223, E. Krost.....Nov. 20, 1877
236,471, Franz Windhausen.....Jan. 11, 1881
272,667, H. Egells.....Feb. 20, 1883
301,457, J. Patten.....July 1, 1884
320,144, A. Kux.....July 16, 1885
323,707, F. Windhausen.....Aug. 4, 1885
327,300, A. Natanson.....Sept. 29, 1885
340,031, J. Csete.....April 13, 1886
350,270, H. Pischon & R. Pfennig.....Oct. 5, 1886
352,041, A. Conacher.....Nov. 2, 1886
396,730, A. Conacher.....Jan. 29, 1889
446,205, E. J. Hardy.....Feb. 10, 1891
544,273, W. J. Ferguson.....Aug. 6, 1895
618,934, H. Fleuss.....Feb. 7, 1899
628,150, C. Tellier.....July 4, 1899
676,666, J. Patten.....June 18, 1901
679,696, J. H. J. Haines.....July 30, 1901
734,748, H. G. Randall.....July 28, 1903
769,110, J. Patten.....Aug. 30, 1904
861,730, J. B. Johnston.....July 30, 1907
934,545, A. M. Kjaersgaard & C. S. J. Wiese.....Sept. 21, 1909
1,001,400, P. Schou.....Aug. 22, 1911
1,285,415, P. Schou.....Nov. 19, 1918
1,386,625, J. B. Johnston.....Aug. 9, 1921
1,535,603, H. S. Heller.....April 28, 1925
1,559,223, F. O. Conill, et al.....Oct. 27, 1925
1,561,012, M. L. Nestal.....Nov. 10, 1925

Sub Class 154. Liquid Coolers, Evaporative

Apparatus for cooling one liquid by removing heat therefrom by the evaporation of another liquid.

14,498, J. S. Gallaher, Jr.....Mar. 25, 1856
30,461, T. Byrne.....Oct. 23, 1860
59,993, W. Garrard.....Nov. 27, 1866
64,614, Wise & Loeffler.....May 7, 1867
69,797, M. Gould.....Oct. 15, 1867
102,595, J. Rutter.....May 3, 1870
108,816, S. J. Newsham, W. H. Haines & W. S. Henson.....Nov. 1, 1870
130,534, J. Ring.....Aug. 13, 1872
149,852, K. Goddard.....April 21, 1874
194,510, F. G. Butler.....Aug. 28, 1877
Re. 7,224, F. G. Butler.....May 27, 1879
208,471, W. Galloway.....Oct. 1, 1878
228,756, C. C. Haynes.....June 15, 1880
Re. 9,302, F. G. Butler.....July 20, 1880
236,529, E. L. Barber.....Jan. 11, 1881
247,022, G. W. Deitzler.....Sept. 13, 1881
247,191, C. C. Haynes.....Sept. 20, 1881
249,608, R. H. Franklin.....Nov. 15, 1881
264,185, J. Miller.....Sept. 12, 1882
266,561, J. M. Van Wagner.....Oct. 24, 1882
274,339, S. Kalfus.....Mar. 20, 1883
291,166, F. A. Dodge.....Jan. 1, 1884
331,437, A. G. Southby.....Dec. 1, 1885
415,366, W. Symington.....Nov. 19, 1889
419,230, V. Stuyvesant.....Jan. 14, 1890
445,667, A. T. Beacham.....Feb. 3, 1891
473,478, J. Schrib.....April 26, 1892
491,964, W. J. Fletcher.....Feb. 14, 1893
504,585, J. Hymans.....Sept. 5, 1893
559,267, I. A. Dodge.....April 28, 1896
652,906, W. R. Welke & M. Biederstaedt.....July 3, 1900
702,134, W. L. Haley.....June 10, 1902
723,098, C. O. White.....Mar. 17, 1903
831,572, J. L. Smith.....Sept. 25, 1906
888,206, F. W. Tuerk.....May 19, 1908
944,359, W. N. Amshary.....Dec. 28, 1909
1,002,330, G. H. Blake.....April 7, 1914
1,158,757, H. Welsch.....Nov. 2, 1915
1,221,916, A. W. Smith.....April 10, 1917
1,237,689, J. F. Medvecky & F. Mayer.....Aug. 21, 1917
1,239,250, W. R. Barringer.....Sept. 4, 1917
1,467,436, J. P. Kramer.....Sept. 11, 1923
1,483,990, H. F. Schmidt.....Feb. 19, 1924
1,580,300, J. E. Howorth.....April 13, 1926

Sub Class 155. Liquid Coolers, Evaporative, Pressure

Evaporative liquid coolers in which the liquid is in a closed chamber or conduit capable of withstanding pressure.

96,047, D. E. Somes.....Oct. 19, 1869
124,457, James D. Sturges.....Mar. 12, 1872
158,269, W. F. Garrison.....Dec. 29, 1874
247,020, G. W. Deitzler.....Sept. 13, 1881
247,021, G. W. Deitzler.....Sept. 13, 1881
291,595, W. A. Hawthorn.....Jan. 8, 1884
291,914, S. H. Linn.....Jan. 15, 1884

746,623, Z. C. Womble.....Dec. 8, 1903
856,508, J. Y. Arnot.....June 11, 1907
964,734, R. W. Ammons.....July 19, 1910
1,001,960, L. B. Johnson.....Aug. 29, 1911
1,359,695, A. M. Gow.....Nov. 23, 1920
1,552,953, G. Richards.....Sept. 8, 1925

Sub Class 156. Liquid Coolers, Evaporative, Air Pump

Evaporative liquid coolers having an air pump for blowing air over the moistened surface to increase the evaporation.

40,644, V. E. Russo.....Nov. 17, 1863
70,909, D. E. Somes.....Nov. 12, 1867
114,985, D. E. Somes & F. C. Somes.....May 16, 1871
138,195, A. F. Rick.....April 22, 1873
329,380, C. H. Evans.....Oct. 27, 1885
431,244, H. Von Bayer.....July 1, 1890
976,805, F. P. Hopkins.....Nov. 22, 1910
1,058,109, W. P. Sibley.....April 8, 1913
1,076,760, W. Graff.....Oct. 28, 1913
1,131,835, G. D. Harris & J. S. Pollard.....Mar. 16, 1915
1,432,705, P. R. McCrary.....Oct. 17, 1922

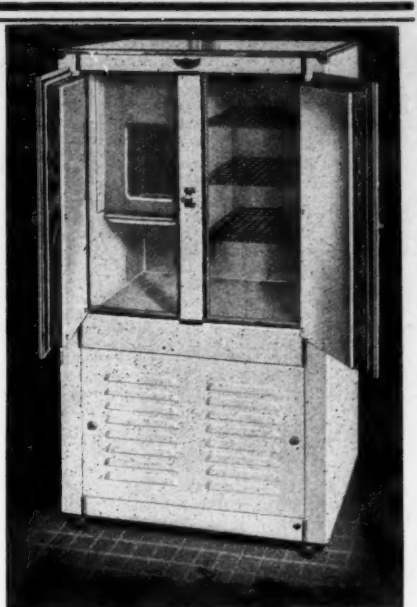
Sub Class 157. Liquid Coolers, Tank

Liquid coolers having one or more tanks in which the liquid to be cooled is contained.

Note—This subclass and the subclasses indented thereunder contain patents for tanks in which water is frozen for ice making.

187,413, R. P. Pictet.....Feb. 13, 1877
193,479, E. Burgin.....July 24, 1877
236,647, Z. T. Sweeney.....Jan. 11, 1881
278,527, H. F. Fordham.....May 29, 1883
314,038, C. G. Mayer.....Mar. 17, 1885
345,550, C. F. Smith.....July 13, 1886
491,225, L. Pusey.....Feb. 7, 1893
564,486, J. Humes.....July 21, 1896
604,177, W. F. Niebling.....May 17, 1898
672,804, J. Wolfensperger.....Apr. 23, 1901
695,907, G. F. Buckingham.....Mar. 25, 1902
752,477, H. Stout.....Feb. 16, 1904
814,115, A. Campbell.....Mar. 6, 1906
842,360, G. L. Vail.....Jan. 29, 1907
873,189, W. W. Tobey & F. Freeman.....Dec. 10, 1907
943,226, C. D. Havenstrite.....Dec. 14, 1909
947,615, J. J. DeKinder.....Jan. 25, 1910
967,302, W. E. Armistead.....Aug. 16, 1910
973,434, J. B. Hoy.....Oct. 18, 1910
979,112, G. L. Vail.....Dec. 20, 1910
1,014,140, E. E. Gainer.....Jan. 9, 1912
1,027,304, W. E. Armistead.....May 21, 1912
1,037,731, A. F. Cramer.....Sept. 3, 1912
1,074,417, Z. U. Dodge.....Sept. 30, 1913
1,084,956, J. W. Orr.....Jan. 20, 1914
1,097,312, W. Graff.....May, 19 1914
1,120,604, C. O. Dawson.....Dec. 8, 1914

(Continued on Page 10)



Model G-10 Rhinelander Cabinet

Cabinet by "RHINELANDER"

If the electric refrigerating unit is the product of one of the recognized leaders in this highly specialized field and—If the cabinet is by Rhinelander, then you have every assurance that you are giving your customers the best equipment money can buy! Rhinelander cabinets for electric refrigeration are beautiful in design—in keeping with the finest refrigerating units—and are made with full porcelain one-piece lining. Rhinelander exclusive construction assures maximum cooling efficiency and cleanliness.

Write for detailed specifications and free copy of beautifully illustrated 105-page book: "Rhinelander Handbook of Refrigeration"—the most complete work of its kind ever published.

Rhinelander Refrigerator Company
Rhinelander, Wis.



So Big and so little

The Atlas Refrigerator Cases in the photograph present a study in extremes—one of the very large sizes and one of the smallest.

Atlas Refrigerator Cases are "tailor-made" to fit any size of refrigerator—large or small—and the labor saving in assembling them is just as great whatever the size.

And so it is with the remarkable protection that Atlas Cases give refrigerators—the type or size does not lessen it. Dealers and manufacturers alike profit by the use of Atlas Refrigerator Cases for every refrigerator shipment.

Atlas Packing Cases
CARRY THE WEIGHT—SAVE FREIGHT
ATLAS PLYWOOD CORPORATION
General Offices: Park Square Building, Boston, Mass.
New York Office: 90 West Broadway
Chicago Office: 649 McCormick Building

(Continued from Page 9, Column 4)

1,134,420, G. L. Renschline	Apr. 6, 1915
1,144,312, W. J. Winkler	June 22, 1915
1,156,882, W. Blankner	Oct. 12, 1915
1,225,893, G. T. Turner	May 15, 1917
1,228,109, W. E. Hexamer	Sept. 19, 1917
1,360,315, G. L. Renschline	Nov. 30, 1920
1,435,643, F. Kaiser	Nov. 14, 1922
1,437,518, R. H. Hemphill	Dec. 5, 1922
1,483,032, J. F. Winkler	Feb. 5, 1924
1,495,848, W. E. Hexamer	May 27, 1924
1,505,891, W. E. Hexamer	Aug. 19, 1924
1,509,043, L. Kobash	Sept. 16, 1924
1,521,709, H. D. Pownall	Jan. 6, 1925
1,521,710, H. D. Pownall	Jan. 6, 1925
1,521,711, H. D. Pownall	Jan. 6, 1925
1,527,889, M. Link	Feb. 24, 1925
1,528,414, H. Friedl	Mar. 3, 1925
1,528,800, P. W. Petersen	Mar. 10, 1925
1,540,632, J. F. Kelley	June 2, 1925
1,573,714, A. H. Hutchinson	Feb. 15, 1926
1,576,136, M. O. Johnson	Mar. 9, 1926
1,588,925, R. G. Whistler	June 15, 1926

Sub Class 158. Liquid Coolers,**Tank, Gas Expansion**

Tanks cooled either directly or indirectly by means of liquefied gas in an expander.

34,993, A. C. Twining	April 15, 1862
63,404, T. S. C. Lowe	April 2, 1870
101,876, D. L. Holden	April 12, 1870
128,448, D. Boyle	June 25, 1872
162,659, A. Jas.	April 27, 1875
163,143, D. Boyle	May 11, 1875
173,313, S. B. Martin	Feb. 8, 1876
177,999, J. F. Gesner	May 30, 1876
242,107, D. Boyle	May 31, 1881
259,697, S. D. Lount	June 30, 1882
277,249, A. W. Eldredge	May 8, 1883
304,871, G. W. Stockman	Sept. 9, 1884
310,025, W. S. Brewer	Dec. 30, 1884
322,550, J. M. W. Neff	July 27, 1886
346,448, C. Vose	July 27, 1886
346,448, C. Vose	July 27, 1886
349,798, G. R. Jarman	Sept. 28, 1886
372,327, R. P. Pictet	Nov. 1, 1887
480,387, J. A. Muller	Jan. 3, 1889
502,437, E. D. Kendall	Aug. 1, 1893
560,123, L. Pusey	Dec. 28, 1907
684,749, A. C. Finlay	Oct. 15, 1901
745,499, G. R. Jarman	Dec. 1, 1903
764,515, M. A. Audiffren	July 5, 1904
948,143, G. Knox	Feb. 1, 1910
955,108, H. F. Stanley	April 12, 1910
959,002, H. D. Pownall	May 1, 1912
964,936, H. D. Pownall	May 1, 1912
975,523, W. H. A. Halsall	Nov. 15, 1910
992,589, H. D. Pownall	May 16, 1911
1,003,283, A. T. Marshall	Sept. 12, 1911
1,014,449, C. S. Campbell	Jan. 9, 1912
1,041,973, O. C. De Fosset	Oct. 22, 1912
1,049,197, S. R. Bell	Dec. 31, 1912
1,050,877, E. V. Voland	Dec. 31, 1912
1,052,345, G. R. Jarman	Feb. 4, 1913
1,082,512, E. R. Gainer	Dec. 30, 1913
1,086,302, E. R. McClure	Feb. 3, 1914
1,098,904, C. A. Huse	June 2, 1914
1,154,836, J. H. Beckman	Sept. 28, 1915
1,155,780, M. Audiffren & H. A. Simon	Oct. 5, 1915
1,532,076, M. F. Postlewaite, et al.	Mar. 31, 1925
1,540,039, W. Stewart	June 2, 1925
1,562,871, A. C. Davis	Nov. 24, 1925

Sub Class 159. Liquid Coolers,**Tank, Air Injected**

Liquid cooling tanks having means for injecting air into the liquid.

53,682, W. Rose	April 3, 1866
57,805, W. J. Wilcox	Sept. 4, 1866
118,411, E. C. Weld	Aug. 22, 1871
208,304, J. Gamgee	Sept. 24, 1878
258,226, F. Gergens	May 23, 1882
310,025, W. S. Brewer	Dec. 30, 1884
450,676, W. S. Parker	Apr. 23, 1886
490,508, T. Shaw	Jan. 24, 1893
576,672, O. Hammond, Jr.	Feb. 9, 1897
614,773, J. E. Simon	Nov. 22, 1898
667,897, E. J. Ulrich	Feb. 12, 1901
680,087, E. J. Ulrich	Aug. 6, 1901
690,088, E. J. Ulrich	Aug. 6, 1901
690,088, E. J. Ulrich	Aug. 6, 1901
710,662, L. Block	Oct. 7, 1902
714,494, R. F. Learned	Nov. 25, 1902
726,852, L. Block	May 5, 1903
735,673, R. F. Learned	Aug. 4, 1903
739,173, E. E. Hamner	Sept. 15, 1903
753,081, R. F. Learned	Feb. 23, 1904
924,248, A. C. Bishop	May 23, 1904
923,298, T. H. Ray	June 1, 1909
934,732, O. H. Jewell	Sept. 21, 1909
934,972, O. H. Jewell	Sept. 21, 1909
938,977, R. J. Berryman	Oct. 12, 1909
948,131, W. B. Bull	Feb. 1, 1910
955,583, O. H. Jewell	July 26, 1910
965,384, O. H. Jewell	July 26, 1910
980,152, F. W. Haas	Dec. 27, 1910
983,017, A. E. Beals	Jan. 31, 1911
983,508, P. R. McCrary	Feb. 7, 1911
984,168, P. R. McCrary	Feb. 14, 1911
992,518, H. D. Pownall	May 16, 1911
994,881, H. Sloan	June 13, 1911
1,004,408, O. Freytag	Oct. 3, 1911
1,004,653, O. H. Jewell	Oct. 3, 1911
1,012,108, J. E. Simon	Dec. 19, 1911
1,020,015, G. H. Fisher & P. J. O'Neill	Mar. 12, 1912
1,030,013, R. J. Berryman	Sept. 17, 1912
1,046,252, R. J. Berryman	Dec. 3, 1912
1,051,296, E. J. Williams	Jan. 21, 1913
1,051,297, E. J. Williams	Jan. 21, 1913
1,051,298, E. J. Williams	Jan. 21, 1913
1,051,299, E. J. Williams	Jan. 21, 1913
1,051,300, E. J. Williams	Jan. 21, 1913
1,068,608, J. Steynis	July 29, 1913
1,077,484, W. McCormick	Nov. 4, 1913
1,082,871, J. Hume	Dec. 30, 1913
1,084,956, J. Hume	Dec. 30, 1913
1,113,298, F. L. Berry	Oct. 13, 1914
1,114,957, J. F. Bender	Oct. 27, 1914
1,129,519, C. S. Ralph	Feb. 23, 1915
1,130,440, T. Shipley	Mar. 2, 1915
1,142,085, T. Gaffney & T. B. Maginnis	June 8, 1915
1,159,009, E. T. Williams	Aug. 3, 1915
1,157,943, J. H. Lamb	Oct. 26, 1915
1,158,320, T. Shipley	Oct. 26, 1915
1,159,058, W. H. Manns	Nov. 2, 1915
1,160,945, J. J. Murphy	Nov. 16, 1915
1,162,022, H. D. Pownall	Nov. 30, 1915
1,162,075, W. B. Kirkpatrick	Jan. 25, 1916
1,169,164, W. B. Kirkpatrick	Jan. 25, 1916
1,174,591, F. H. Lewis	Mar. 7, 1916
1,176,314, J. H. Poole	Mar. 21, 1916
1,178,116, E. T. Williams	Apr. 4, 1916
1,180,529, H. D. Pownall	Apr. 25, 1916
1,180,530, H. D. Pownall	Apr. 25, 1916
1,180,531, H. D. Pownall	Apr. 25, 1916
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1,180,541, H. D. Pownall	Apr. 25, 1916
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MICHIGAN PROFESSOR BELIEVES IN FUTURE OF GAS REFRIGERATOR

"The development, manufacture and sale of household type, gas-fired refrigerating machines represents one of the newest and most outstanding group of business opportunities of the present time."

Hugh E. Keeler, assistant professor of mechanical engineering, University of Michigan, made this statement recently at Mackinac Island, in an address before the annual convention of the Michigan Gas Association. Prof. Keeler has spent several years in the study of refrigeration processes using the direct application of heat instead of the more familiar motor-compressor process.

While the use of heat directly to produce cold might at first thought seem an anomaly, Prof. Keeler explained that all refrigeration processes involve the use of heat. Energy is necessary in the operation of any refrigeration machine, and the energy must be produced from heat.

Operation of the gas-fired refrigerators is not unlike that of other types, Prof. Keeler said. He compared the suction stroke of the ordinary compressor to the absorption process of the gas refrigerator, and the compression stroke to the generation of pressure in the small boiler or "generator" of the gas machine.

Silent operation, moderate first and operating costs, a minimum of servicing, and the incorporation of positive safety devices were features of the new refrigerators pointed out by Prof. Keeler.

Following long experimental operation, he said, several manufacturers have recently started building the refrigerators on a production basis.

ELECTRIC REFRIGERATOR ADDS TO POPULARITY OF FROZEN DESERTS

By Sarah E. Dunn

Frozen desserts have never been so popular as they are today. And it is all due to the electric refrigerator. Without it we were considerably handicapped when trying to freeze various consistencies and combinations. Once it required time and effort to make special frozen dainties, but now we can prepare our desserts in the morning, or some time in the afternoon, and by the time dinner is drawing to a close it is thoroughly chilled and ready to serve. Here are several suggestions that the housewife with an electric refrigerator might enjoy serving:

Frozen Peaches and Cream

Peel and slice one quart of ripe peaches, add sugar to taste, although about one cupful is usually sufficient when you desire the peaches only moderately sweet. Over this pour one cupful of heavy cream. Mix thoroughly without breaking the fruit, and turn into the freezing tray of your electric refrigerator about three or four hours before you expect to serve it.

Berries, bananas and other fruits may be prepared the same way, only the quantity of sugar used need vary.

Frozen Custard

Scald three cupfuls of milk and into this stir two tablespoonfuls of cornstarch which has been dissolved with one-fourth cupful of cold milk. Make a soufflé from two eggs, three-fourths of a cupful of sugar and one-fourth teaspoonful of salt. Stir this into the milk and cornstarch slowly and keep the heat "low," or higher if double boiler is used. Cook until it coats a spoon. Remove from the range; let cool, then add two teaspoonfuls of vanilla and turn into a freezing tray. It will require from two to three hours to freeze. To add novelty you can serve fresh berries or sliced fruit around it and a teaspoonful of whipped cream.

Chocolate Mousse

Scald one and three-fourths of a cupful of milk and in it dissolve two squares of cooking chocolate. To this then add half a cupful of sugar and a tiny pinch of salt. Dissolve one tablespoonful of gelatin in enough water to cover it and add to the mixture. Let cool. When it begins to congeal flavor it with one and one-half teaspoonfuls of vanilla and fold in one pint of heavy whipped cream. Put in the freezing pan and allow about four or five hours to freeze.

Carnegie Steel Plant Buys 200 Frigidaire Water Coolers

An estimated saving of \$40,000 annually in ice bills and servicing costs will be effected by the Carnegie Steel Co., in the purchase of a large order of electric water coolers manufactured by the Frigidaire Corporation.

The Dayton subsidiary of General Motors Corporation recently received a contract from the Carnegie Steel Company for 200 electric water coolers to be installed at the Homestead works, where 12,000 persons are employed.—Dayton Herald, June 22, 1927.

THE MOST VALUABLE CONTRIBUTION TO THE INDUSTRY

"The May 25 issue was certainly the most valuable contribution to the industry that has yet been made."—C. A. Bryant, Narragansett Machine Co., Pawtucket, R. I.

Electric Refrigeration Brings New Day to Sailors On Trading Ships and to the Islands They Visit

Electric refrigeration is bringing even the so-called cannibal islands up to date. Native fruits frozen in the ice-pans of an electric refrigerator are the delicacies which cause the mouths to water and the eyes to grow round with wonder, as natives of islands in the southern hemisphere see the tiny frozen cubes.

Not so long ago, Captain Leo Ozanne, of the trading ship BRETAGNE, laid anchor in the San Francisco harbor. In addition to carrying the French mail to the South Sea islands, Captain Ozanne loads the BRETAGNE with a miscellaneous cargo for the islands. On the return trip he carries a native cargo made up mostly of copra. And now he will obtain the native cargo at a fraction of the former cost!

While in San Francisco, Captain Ozanne had the BRETAGNE equipped with an electric refrigerator. Not only will it

enable his men to relieve the "canned diet" of a trading ship, but from the ice pans of the machine will come the cubes of frozen fruit. These Captain Ozanne will trade the natives for their copra and other products. New to them, the cubes of fruit, colder than ice, will have the commercial value of gold in barter with the islanders.

Electric refrigeration is bringing in a new day for the sailor of trading steamers, tramp ships and the like which have heretofore regarded many such modern developments as the luxuries of the large passenger ships alone. With the fresh meats and vegetables which can be provided on the trips when ports of call are many days apart, the hardships of the sailor's life, which he none too delicately lays at the door of the ship's cook, will have been considerably lessened.

ELECTRIC REFRIGERATION PATENT RECORD

(Continued from Page 10)

Sub Class 176. Processes, Cooling Air

Processes for cooling air or other gas.

8,080, J. Gorrie.....	May 6, 1851
17,394, W. A. Royce.....	May 26, 1857
63,413, T. S. C. Lowe.....	April 2, 1856
87,041, E. H. Grant.....	Feb. 16, 1869
96,047, D. E. Somes.....	Oct. 19, 1869
112,726, Lugo & McPherson.....	Mar. 14, 1871
Re. 5,202, W. A. Royce.....	Dec. 24, 1872
162,432, A. H. Tait.....	April 20, 1875
175,291, S. D. Lount.....	Mar. 28, 1876
183,406, R. H. Lucas.....	Oct. 17, 1876
184,291, R. H. Lucas.....	Nov. 14, 1876
229,750, R. Portner & B. E. J. Ellis.....	July 6, 1880
231,886, L. Allen.....	Sept. 7, 1880
244,236, E. Hill.....	July 12, 1881
244,602, E. Hill.....	July 19, 1881
247,578, W. Plumer.....	Sept. 27, 1881
252,921, L. Allen.....	Jan. 31, 1882
259,421, O. Parker.....	June 13, 1882
263,620, J. Sturgeon.....	Aug. 29, 1882
265,627, O. Parker.....	Oct. 10, 1882
275,964, T. S. Verry.....	April 17, 1883
290,794, C. Palmer.....	Dec. 25, 1883
290,795, C. Palmer.....	Dec. 25, 1883
311,831, C. & G. M. Heintz & A. Dotterweich.....	Feb. 3, 1885
330,884, E. Fixary.....	Nov. 24, 1885
644,847, M. Cooper.....	Mar. 6, 1900
652,179, J. Gayley.....	June 19, 1900
726,181, W. L. Moore.....	April 21, 1903
958,471, H. A. Brasser.....	May 17, 1910
971,297, J. B. Miles.....	Sept. 27, 1910
1,002,577, J. Gayley.....	Sept. 5, 1911
1,002,578, J. Gayley.....	Sept. 5, 1911
1,004,468, I. H. Reynolds & F. E. Norton.....	Sept. 26, 1911
1,093,859, M. W. Johnson, Jr.....	April 21, 1914
1,113,682, J. F. M. Patitz.....	Oct. 13, 1914
Re. 14,321, W. B. Kirkpatrick.....	June 26, 1917
1,252,472, C. W. Miles.....	Jan. 8, 1918
1,510,340, P. D. Pauls.....	Sept. 30, 1924
1,527,640, H. Friedl.....	Feb. 24, 1925

Sub Class 177. Processes, Cooling Liquids

Processes for cooling liquids.

4,697, J. Dutton.....	Aug. 18, 1846
6,865, G. Coffeen, Jr.....	Nov. 13, 1849
Re. 1,265, H. Migeon.....	Jan. 28, 1862
49,887, Keller & Henderson.....	Sept. 12, 1865
53,682, W. Rose.....	April 3, 1866
57,221, Tschirgi & Kammuller.....	Aug. 14, 1866
57,905, W. J. Wilcox.....	Sept. 4, 1866
64,452, P. Schweikhart.....	May 7, 1867
78,159, J. B. Toselli.....	May 19, 1868
83,099, L. Schulze.....	Oct. 13, 1868
89,901, Thompson & Darling.....	May 11, 1869
101,682, Tuttle & Lugo.....	April 5, 1870
108,606, O. P. Lewis.....	Oct. 25, 1870
111,280, Tuttle & Lugo.....	Jan. 24, 1871
126,305, Johnson & Whitelaw.....	April 30, 1872
138,478, J. W. Collier.....	May 6, 1873
144,577, A. H. Tait.....	Nov. 11, 1873
159,997, L. B. Woolfolk.....	Feb. 16, 1875
170,935, R. Bullymore.....	Dec. 14, 1875
173,314, S. B. Martin.....	Feb. 8, 1876
177,945, A. Jas.....	May 23, 1876
205,643, D. L. Holden.....	July 2, 1876
206,626, J. Siddeley & F. N. Mackay.....	July 30, 1878
228,487, C. Tessie du Motay & A. J. Rossi.....	June 8, 1880
236,481, A. S. Benner.....	Jan. 11, 1881
Re. 9,744, D. C. Larkins.....	June 7, 1881
256,660, O. Parker.....	Mar. 28, 1883
256,650, D. W. Davis.....	April 18, 1882
259,907, W. S. Osborn.....	June 20, 1882
261,236, E. Kella.....	July 18, 1882
266,930, H. Warden.....	Oct. 31, 1882
277,931, S. F. Reynolds.....	Mat. 22, 1883
291,774, G. H. Reynolds & L. Allen.....	Jan. 8, 1884
310,025, W. S. Brewer.....	Dec. 30, 1884
328,523, A. Schmitz.....	Oct. 20, 1885
348,824, A. J. Chase & C. F. Smith.....	Sept. 7, 1886
356,210, G. Richmond.....	Jan. 18, 1887
523,412, T. Scheffler.....	July 24, 1894
788,446, A. R. Wilson.....	April 25, 1905
896,551, F. Jurgens.....	Aug. 18, 1908
1,263,893, W. T. Hoofnagle.....	April 28, 1918
1,376,112, L. H. Parker.....	April 28, 1921
1,380,535, G. H. E. Davis.....	June 7, 1921
1,426,555, H. H. Doering.....	Aug. 22, 1922
1,435,142, E. G. R. Angel.....	Nov. 14, 1922
1,462,177, A. Messer.....	July 17, 1923
1,509,812, J. R. Replogle, et al.....	Sept. 23, 1924

Sub Class 178. Processes, Cooling by Vaporization

Processes for cooling by the vaporization of a condensed gas or liquid that volatilizes rapidly at normal temperatures.

63,405, T. S. C. Lowe.....	April 2, 1856
63,413, T. S. C. Lowe.....	April 2, 1856
85,719, C. Teller.....	Jan. 5, 1869
84,450, A. H. Tait.....	Aug. 31, 1869
101,682, D. K. Tuttle & O. Lugo.....	April 5, 1870
119,795, Charles A. Seely.....	Oct. 10, 1871
Re. 5,288, F. P. E. Carre.....	Feb. 18, 1873
167,181, William H. H. Mallory.....	Aug. 31, 1875
187,413, R. P. Pictet.....	Feb. 13, 1877
224,246, C. M. Tessie du Motay & Auguste J. Rossi.....	Feb. 3, 1880
228,488, C. M. Tessie du Motay & Auguste J. Rossi.....	June 8, 1880
236,843, A. J. Rossi & L. F. Beckwith.....	Jan. 18, 1881
243,759, T. Cook.....	July 5, 1881
244,938, T. Rose.....	July 26, 1881
245,094, T. Rose.....	Aug. 2, 1881
250,158, G. F. Meyer.....	Nov. 29, 1881
258,227, F. Gergens.....	May 23, 1882
Re. 10,221, R. P. Pictet.....	Oct. 24, 1882
275,834, Charles Marchand.....	April 17, 1883
283,054, W. M. Wood & W. L. Baillie.....	Aug. 14, 1883
284,068, J. C. Rossi.....	Aug. 28, 1883
309,442, F. V. De Coppet.....	Dec. 16, 1884
309,494, T. Rose.....	Dec. 16, 1884
319,108, J. H. E. Mendes.....	June 2, 1885
332,751, Auguste J. Rossi.....	Dec. 22, 1885
332,752, Auguste J. Rossi.....	Dec. 22, 1885
336,235, E. E. Hendrick.....	Feb. 16, 1886
379,264, W. Andrew.....	Mar. 13, 1888
436,003, H. J. Krebs.....	Sept. 9, 1890
446,076, T. Rose.....	Feb. 10, 1891
464,434, F. B. Hill.....	Dec. 1, 1891
537,590, M. Wanner.....	April 16, 1895
626,906, W. W. Harris.....	June 13, 1899
651,827, C. J. Coleman.....	June 19, 1900
653,171, C. J. Coleman.....	July 3, 1900
662,690, H. Geppert.....	Nov. 27, 1900

1,500,270, T. Shipley.....	July 8, 1924
1,563,456, K. L. Curtis.....	July 29, 1924
1,510,759, Paul H. Buch.....	Oct. 7, 1924
1,511,365, T. B. Slate.....	Oct. 14, 1924
1,512,133, T. I. Potter.....	Oct. 21, 1924
1,518,053, H. L. Doherty.....	Dec. 2, 1924
1,519,353, W. S. Bowen, et al.....	Dec. 16, 1924
1,527,833, J. Buchel.....	Feb. 24, 1925
1,565,795, B. H. Coffey.....	Dec. 15, 1925
1,566,448, J. B. Thompson, et al.....	Dec. 22, 1925
1,568,102, E. Thomson.....	Jan. 5, 1926
1,569,744, W. Green.....	Jan. 12, 1926
1,609,334, B. C. Von Platen and C. G. Munter.....	Dec. 7, 1926
731,842, G. T. Voorhees.....	June 23, 1903
734,975, A. Siebert.....	July 28, 1903
740,446, N. Lattard & A. C. Schott.....	Oct. 6, 1903
756,061, J. S. Scott.....	Mar. 29, 1904
778,842, J. G. Bouchard.....	Jan. 3, 1905
793,696, G. T. Voorhees.....	July 4, 1905
804,478, F. Kruger & R. Hensch.....	Nov. 14, 1905
816,810, C. E. Moleworth.....	April 3, 1906
849,998, W. Helm.....	April 9, 1907
906,906, J. D. Mayhew.....	Dec. 15, 1908
907,478, C. A. Dunham.....	Dec. 22, 1908
912,647, R. S. Cates.....	Feb. 16, 1909
920,558, G. Fleming.....	May 4, 1909
920,559, G. Fleming.....	May 4, 1909
929,389, T. J. Clement.....	July 27, 1909
938,181, R. H. Thomas.....	Oct. 26, 1909
952,382, J. Thornton & E. Heyman.....	Mar. 15, 1910
953,972, W. Pfeiderer and W. W. Harris.....	April 5, 1910
999,078, W. B. Wood & B. L. Warner.....	July 25, 1911
1,009,406, M. J. Graham.....	Nov. 21, 1911
1,014,693, H. Moeller.....	Jan. 16, 1912
1,018,703, W. Griesser.....	Feb. 27, 1912
1,018,704, W. Griesser.....	Feb. 27, 1912
1,081,350, G. Viney.....	Dec. 16, 1913
1,086,302, E. R. McClure.....	Feb. 3, 1914
1,303,990, C. B. Telling.....	May 20, 1919
1,469,729, D. D. Myers.....	Oct. 2, 1923
1,557,200, H. B. Hull.....	Oct. 13, 1925
1,565,198, R. Rasheta.....	Dec. 8, 1925
1,591,834, S. L. Jeffries.....	July 6, 1926

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WHITE-HANNA
302 Lincoln Bldg.,
DETROIT, MICHIGAN

EXTRA DRY ESOTOO

THE PUREST SULPHUR DIOXIDE

Analysis Guaranteed

We have an agent, with our product in stock, near you
Wire us where we can serve you

VIRGINIA SMELTING CO., WEST NORFOLK, VA.

F. A. EUSTIS, Secretary

131 STATE ST., BOSTON

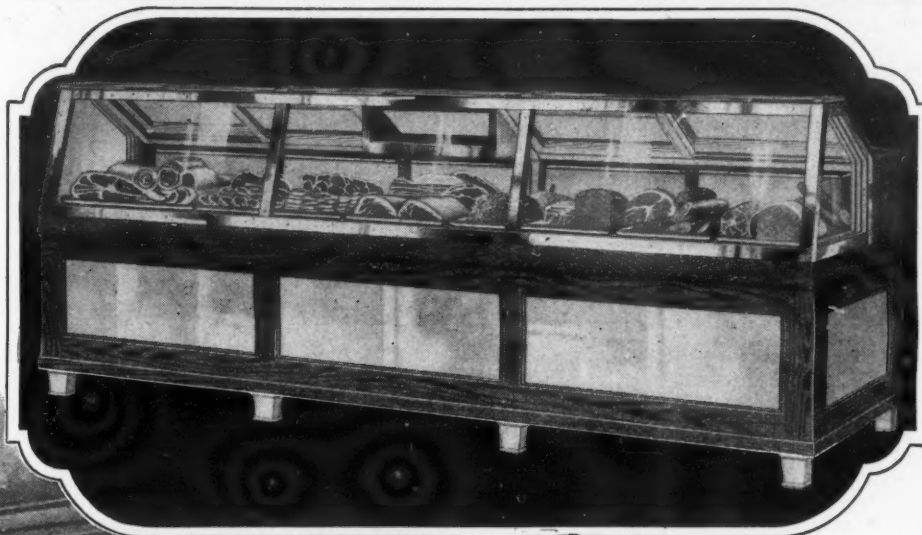
2 RECTOR ST., NEW YORK

THE WORLD'S LARGEST MANUFACTURER OF REFRIGERATORS FOR ALL PURPOSES

For ELECTRIC Refrigeration

McCray refrigerators may be used with any type of electric or mechanical refrigeration. All models are ready for immediate installation of the cooling unit. Remember quality in the refrigerator is vital to satisfactory service whether ice or machine is used.

Pure corkboard insulation, covered with waterproof insulating sheathing and sealed with hot hydrolene cement, insures perfect airtightness in all McCray refrigerators.



A Refrigerator That SELLS Food

A REFRIGERATOR that sells food by displaying it temptingly, at the customer's eye-level — by keeping it fresh, wholesome, appetizing in appearance as well as flavor!

This is the McCray 103, shown above, with which merchants everywhere are building bigger business, cutting operating costs, avoiding spoilage and increasing profits. Used with Electric Refrigeration

or ice, every McCray model insures efficient, economical, enduring service. Built upon basic patents, in accord with an unyielding ideal, McCrays are the accepted standard of refrigerator quality.

For 37 years McCray refrigerators have been giving daily proof in service of the staunchness which marks every hidden detail of construction—in stores, markets, hotels, clubs, restaurants, hospitals, institutions, florist shops, homes. Send the coupon for details about refrigerators for your needs.

For further information

MAIL COUPON

McCray Refrigerator Sales Corporation,

Lake St.,

Kendallville, Ind.

Please send further information regarding refrigerators for () stores, markets

() hotels, restaurants, clubs

() hospitals, institutions

() florist shops () homes.

Name.....

St.....

City.....

State.....

() for electrical refrigeration () for ice

McCray REFRIGERATOR SALES CORPORATION

Lake St., Kendallville, Ind.

Salesrooms in All Principal Cities (See Telephone Directory)

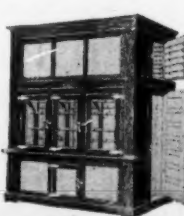
McCRAY

REFRIGERATORS

for all purposes



McCray No. 150



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McCray No. 410



McCray No. 411



Electric Refrigeration Directory

Section 1—Manufacturers of Electric Refrigerators

For Household or Commercial Use. (See Section 2 for Manufacturers of Cabinets Only. See Section 3 for Manufacturers of Parts and Accessories)

Copeland Products, Inc., Detroit, Mich.

Manufacturers of COPELAND commercial and household refrigerators. William Robert Wilson, president; George W. Mason, vice-president; Edwin H. Brown, secretary and treasurer; D. E. Knowles, assistant secretary, treasurer and comptroller; W. D. McElhinny, vice-president in charge of sales; George W. Mason, vice-president and general manager; A. M. Taylor, advertising and sales promotion manager; B. P. Watkins, purchasing agent; Glen Muffy, chief engineer; S. W. Taylor, factory manager; M. B. Ellis, service manager.

General Electric Co., Electric Refrigeration Dept., Hanna Bldg., 1400 Euclid Ave., Cleveland, Ohio. Factories at Schenectady, N. Y., and Fort Wayne, Ind. Manufacturers of GENERAL ELECTRIC household electric refrigerators; motors for household and commercial machines.

T. K. Quinn, manager; P. B. Zimmerman, sales manager; W. J. Daily, sales promotion manager; L. R. Edwards, advertising manager; C. E. Eveleth, works manager, Schenectady; Walter Goll, works manager, Fort Wayne.

Electro-Kold Corp., 151 S. Post St., Spokane, Wash.

Manufacturers of ELECTRO-KOLD electric refrigeration units for household and commercial use.

X. L. Anthony, president; L. J. Kimmel, vice-president; E. S. Matthews, secretary-treasurer; C. L. Lewis, general manager; E. S. Matthews, sales manager; H. L. Masterson, advertising manager; D. W. Mather, purchasing agent; L. J. Kimmel, chief engineer.

The Iroquois Electric Refrigeration Co., 1500 Arch St., Philadelphia, Pa. Associate of the Barber Asphalt Co. Factory at Buffalo, N. Y.

Manufacturers of IROQUOIS household electric refrigerators; pumps and compressors; condensers and expanders; float valves; other control devices.

Arthur W. Sewall, president; Frank Seamans and C. W. Bayliss, vice-presidents; E. R. Riter, secretary; Ira Atkinson, treasurer; C. W. Bayliss, sales manager; W. F. Hartzell, advertising manager; F. A. Browne, chief engineer; A. L. Bell, works manager.

Kelvinator, Inc., Plymouth Road, Detroit Michigan. Subsidiary of Electric Refrigeration Corp. Factories at Detroit and Grand Rapids, Mich.

Distributors of KELVINATOR electric refrigerators for household and commercial use, NIZER ice cream and soda fountain units and cabinets, LEONARD refrigerator cabinets, water coolers; other special applications.

A. H. Goss, chairman of board (Electric Refrigeration Corp.); C. K. Woodbridge, president; H. W. Burritt, B. A. MacDonald, W. D. Mercer, A. W. Berresford, H. C. Leonard, and H. A. Lewis, vice-presidents; M. Wiley, secretary; C. K. Matheson, director of sales, Kelvinator division; H. A. Sieck, director of sales, Nizer division; August H. Jaeger, sales manager, Leonard division; Gordon W. Kingsbury, director of advertising; A. A. Morell, purchasing agent; C. C. Spreen, chief engineer; E. A. Seibert, service manager; Gordon Muir, Nizer adv. mgr.

Norge Corp., 670 East Woodbridge St., Detroit, Mich.

Manufacturers of NORGE household electric refrigerator units.

E. E. McCray, chairman of the board; Howard E. Blood, president and general manager; W. C. Rands, vice-president; W. C. Rands, Jr., secretary-treasurer; R. E. Davis, assistant secretary; C. D. Donovan, assistant general manager; A. E. Bottenfield, sales manager; Ira Reindel, chief engineer.

Peerless Ice Machine Co., 503 S. Jefferson St., Chicago, Ill.

Manufacturers of automatic refrigerating machines, water cooling plants, water regulators, and pressure controls.

Rome Manufacturing Co., Railroad St., Rome, N. Y.

Manufacturers of ROME commercial electric refrigerating machinery.

P. C. Thomas, president; Barton Haselton, vice-president; E. L. Spriggs, vice-president; C. P. Drake, secretary-treasurer; P. C. Thomas, general manager; C. P. Drake, sales manager; W. P. Davis, sales promotion and service manager; James Warren, works manager; C. A. Xardell, chief engineer.

Universal Cooler Corp., 18th and Howard Sts., Detroit, Mich.

Manufacturers of UNIVERSAL COOLER electric refrigeration units for household, commercial, ice cream and soda fountain uses; water coolers; other special applications; pumps and compressors; condensers and expanders.

Patterson Farmer, president; Ford Ballantyne, vice-president; Albert H. Meinke, secretary-treasurer; A. DeB. Gaines, sales manager; H. R. Christensen, advertising mgr.; Harry Thompson, chief engineer; George Blair, factory mgr.

Welsbach Co., Gloucester, N. J. Subsidiary of United Gas Improvement Co.

Manufacturers of WELSBACH electric refrigeration units for household and commercial use; water coolers; other special applications; pumps and compressors; thermostats; chemicals; paint.

Sidney Mason, president; Townsend Stites, vice-president; E. L. Knoedler, vice-president; F. J. Rutledge, vice-president; Paul Thompson, vice-president; G. W. Curran, secretary; I. W. Morris, treasurer and assistant secretary; E. MacMorris, assistant secretary; T. W. MacLary, assistant treasurer, refrigeration division; Howard R. Lukens, general manager; R. R. Thompson, sales manager; A. B. Hatch, manager public utility relations; C. B. Ryan, Jr., manager, service and sales promotion; R. D. Lombard, commercial sales engineer; R. B. Havens, advertising manager; F. A. Wegener, chief engineer; E. L. Knoedler, general superintendent; Whitney Kirk, purchasing agent.

Notice

The Electric Refrigeration Directory is published as a service to the industry. There is no charge for this listing. Manufacturers whose names have been omitted are invited to furnish the necessary information at once.

Owing to the increased size of the Directory since its previous appearance in the June 22 issue, it was necessary to reduce the size of type used. Preference was therefore given to those companies having advertising contracts or advertisements in this issue. The listing of these companies remains in the larger type and double column width.

This distinction is made in fairness to those companies whose advertising makes possible the continued service of ELECTRIC REFRIGERATION NEWS to the industry. It is also an advantage to the reader in that it indicates those companies which are prepared to serve new customers.

Note: This Directory will be reprinted, with corrections and additions, in the issue of August 17, 1927.

American Engine and Airplane Co., Los Angeles, Cal. Manufacturers of household electric refrigerators and control devices. Ralph M. Burdick is president.

American Engineering Co., Kensington Station, Philadelphia, Pa. Manufacturers of JURNICK commercial, ice cream and soda fountain units. Maxwell Alperin, president; W. V. Santer, vice-president; C. L. Cushman, secretary and treasurer; H. L. Lewis, sales manager refrigeration department; J. G. Worker, general sales manager; H. L. Lewis, sales manager refrigeration; J. M. Combs, advertising manager; E. W. Scharfhausen, purchasing agent; H. A. Peck, works manager; O. A. Johnson, factory engineer.

Audiffren Refrigerating Machine Co., 285 Madison Ave., New York, N. Y.; factory at Jersey City, N. J. Manufacturers of AUDIFFREN electric refrigerators for household and commercial use. E. T. Hargrove, president; K. D. Perkins, vice-president and treasurer.

Baker Ice Machine Co., Inc., 3001 N. 16th St., Omaha, Neb. Manufacturers of BAKER SYSTEM electric refrigeration units for commercial, ice cream and soda fountain use, pumps and compressors, coils. J. L. Baker, president; Charles Knox, vice-president; J. V. Vette, secretary; C. A. Baker, treasurer; L. W. Morris, sales manager; R. C. Hudson, advertising and sales promotion manager; C. A. Baker, purchasing agent; Charles Knox, chief engineer; J. H. Coesfeld, superintendent.

Belding-Hall Electric Corporation, Belding, Mich. Manufacturers of Belding-Hall ELECTRIC household and commercial electric refrigerator units, and cabinets. Arthur E. Swanson, president; Brinton F. Hall, vice-president and treasurer; and Guy D. Weter, secretary.

Brunswick-Kroeschell Co., Jersey Ave., New Brunswick, N. J. Manufacturers of BRUNSWICK commercial electric refrigerators, other control devices. James W. Johnson, president; Sydney B. Carpenter, vice-president and general manager; Arnold H. Goetz, vice-president and chief engineer; Robert A. Kroeschell, secretary and sales manager; William Carpenter, treasurer; H. Harrison, advertising manager; Walter Jones, production manager.

The Bryant Pattern & Mfg. Co., 702-710 St. Antoine St., Detroit, Michigan. Manufacturers of commercial refrigerating machines of 300 to 400 pounds capacity for ice cream cabinets, butcher display cases, etc., together with compressors, patterns, dies, etc.

A. W. Bryant, vice-president and engineer; E. S. Bryant, secretary-treasurer and manager; A. W. Bryant, purchasing agent; E. J. Mamer, sales and advertising manager; E. S. Bryant, factory manager.

Castle Refrigerating Machine Co., 138 Neal St., Indianapolis, Ind. Manufacturers of complete units for commercial use, 2 to 15 tons; electric refrigeration equipment for ice cream manufacturing; ammonia condensers; brine tanks for commercial use.

O. H. Castle, manager and owner. **Champion Electric Co.,** division of Champion Shoe Machinery Co., 3711-41 Forest Park Ave., St. Louis, Mo. Manufacturers of CHAMPION ELECTRO ICE machines for household and commercial use; pumps and compressors, condensers and expanders.

Geo. A. Dohy, president; S. A. Dohy, general manager; Stanley C. Bell, sales and advertising manager; Charles Vogler, purchasing agent; S. A. Dohy, chief engineer.

Climax Engineering Co., 4th St. at 18th Ave., Clinton, Iowa. Subsidiary of the G. W. Dulany Trust, Chicago, Ill.

Manufacturers of CLIMAX electric refrigeration units for household, commercial, ice cream and soda fountain use, pumps and compressors. G. W. Dulany, Jr., president, Chicago, Ill.; E. P. Denkmann, vice-president, Chicago, Ill.; J. M. Thomsen, secretary, Chicago, Ill.; M. M. Cruise, treasurer, Chicago, Ill.; R. C. Rowan, general manager, Clinton, Iowa; R. L. Alexander, manager refrigeration department; J. N. Palmer, advertising refrigeration department; Walter Johnson, purchasing agent; R. L. Alexander, chief engineer.

Clover-Olson Refrigerator Co., 6551 San Pablo Ave., Oakland, Calif. Manufacturers of CLOVER-OLSON electric refrigerators for household, commercial, ice cream and soda fountain use; pumps and compressors; float valves, automatic pressure controls, ammonia machine to 6-ton capacity.

E. F. Clover, president; C. F. Olson, secretary; D. P. Eicke, vice-president.

Coldak Corp., 8 West 40th St., New York, N. Y. Factories at Springfield, Mass.; Providence, R. I., and Muskegon, Michigan. Manufacturers of COLDACK electric refrigerators for household and commercial use. J. H. Pardee, president; A. P. de Saas, vice-president; C. M. Burnhome, vice-president; T. W. Moffatt, treasurer and secretary; E. J. Rock, assistant treasurer; H. B. Brown, assistant treasurer and assistant secretary; J. J. Kehoe, assistant secretary; J. J. West, sales manager; W. R. Wilson, purchasing agent; Hazen J. Smith, chief engineer; Walter Reed, service manager.

Cooke Electric Refrigeration Co., 14-30 N. Green St., Chicago, Ill. Manufacturers of COOKE household, commercial and ice cream cabinets. George J. Cooke, president and treasurer; George J. Cooke, Jr., vice-president; Robert E. Cooke, secretary.

Domestic Electric Refrigerator Corporation, 2 West 46th Street, New York City. Factories at West Chester, Pa.

Manufacturers of ALLISON household electric refrigerating machines. Julius Fleishman Holmes, president; Fred Allison, vice-president; A. L. Kull, vice-president and general manager; Hamilton L. Shields, secretary-treasurer; John A. Sturges, sales manager; George Hotte, sales promotion manager; and H. R. VanDeventer, chief engineer.

Everite Products, Inc., Dayton, Ohio. Manufacturers of EVERITE compressors and cooling units for domestic and commercial use. F. C. Geiler, president; B. K. Williamson, vice-president; J. A. Wortman, secretary and treasurer.

The Frigair Company, 1972-1976 Lincoln Ave., Pasadena, Calif. Factories located at Los Angeles and Inglewood, Calif. Manufacturer of FRIGAIR household and commercial machines and machines for ice cream and soda fountains, water coolers and thermostats.

W. F. Warner, president, general manager, sales promotion manager; T. W. Warner, vice-president; M. L. Warner, secretary and purchasing agent; N. F. Hill, factory manager; D. M. Warner, chief engineer.

Frigidaire Corp., Dayton, Ohio. Subsidiary of General Motors Corporation. Manufacturers of electric refrigerators for household, commercial, ice cream, soda fountain, water coolers and other special applications. E. G. Biechler, president; R. D. Funkhouser, vice-president; C. F. Kettering, vice-president; H. W. Prior, general sales manager; J. A. Harlan, household sales manager; C. A. Corp, commercial sales manager; E. D. Doty, advertising manager; L. S. Keilholtz, chief engineer; Thos. B. Fordham, works manager.

Fowler Refrigerating Machine Co., Baltimore, Md. Manufacturers of the FOWLER commercial and ice cream and soda fountain electric refrigerating machine.

Fleming B. Fowler, chairman of the board; Elbert Fowler, vice-president and chief engineer; Herbert Schaeffer, secretary and treasurer.

General Necessities Corp., 1500-78 Theodore St., Detroit, Mich. Manufacturers of ABSOPURE FRIGERATORS for household, commercial, ice cream and soda fountain use; water coolers; thermostats. David A. Brown, president; H. J. Redwood, first vice-president; C. U. Carpenter, third vice-president and general manager; E. E. Von Rosen, secretary and treasurer; W. Peck, secretary; W. M. Cutler, assistant sales manager; E. W. Wentworth, advertising manager; T. F. Moran, purchasing agent; H. C. Hayes, chief engineer; H. D. Dargert, factory manager; T. S. Pendergast, assistant engineer and service manager.

General Refrigeration Co., Beloit, Wis. Factory at South Beloit, Ill. Manufacturers of LIPMAN commercial electric refrigerators; water coolers; condensers and expanders; coils and other control appliances. T. E. Swords, president; J. R. Morash, vice-president and general manager; J. J. Tynool, secretary; George O. Forbes, treasurer; C. A. Pearson, sales manager; W. C. Moore, advertising manager; J. E. Churn, purchasing agent; F. E. Dennison, chief engineer.

Iron Mountain Co., 939-1011 E. 95th St., Chicago, Ill. Manufacturers of ZEROZONE commercial and household electric refrigerators, electric refrigeration units for ice cream, soda fountains, water coolers and other special appliances. C. E. Jernberg, president; O. H. Anderson, vice-president and general manager; L. C. Keely, vice-president in charge of sales; A. C. Moreland, sales manager; E. C. Lovegren, sales promotion manager; G. G. Hawley, purchasing agent; W. E. Bihl, chief engineer; Nels Anderson, factory manager; R. F. Falley, service manager.

The Iako Company, 2525 Clybourn Ave., Chicago, Ill.

Jack Frost Ice Machine Co., Ltd., 347 Sor-auren Ave., Toronto, Canada. Manufacturers of JACK FROST household and commercial refrigerators, complete units for soft drink cabinets. John G. O'Brien, president; F. Mayhew, vice-president; G. Argument, secretary and treasurer; John C. O'Brien, general manager; Fred C. Baker, manager of sales; T. L. O'Brien, general superintendent; W. Thornton, assistant superintendent in charge of installation and service.

Keokuk Refrigerating Co., Keokuk, Iowa. Manufacturers of KEOKUK household and commercial electric refrigerators, thermostats; other control devices. G. E. Weissenburger, president; John Dillon, vice-president; J. O. Boyd, secretary and treasurer; G. E. Weissenburger, general manager and purchasing agent; John Dillon, sales and advertising manager; G. L. Weissenburger, chief engineer.

Keystone Refrigeration Corp., Beaver Falls, Pa. Manufacturers of KEYREX household and commercial refrigerator units. W. B. Atwood, president; J. B. Easter, vice-president; G. W. Kilpatrick, secretary and treasurer; W. B. Atwood, general manager; J. B. Easter, sales manager; H. S. Michael, chief engineer.

The Lamson Co., subsidiary of American Pneumatic Service Co., Syracuse, New York. Manufacturers of ICE MAID household, ice cream and soda fountain machines. Merton L. Emerson, vice-president; H. W. Alexander, general manager, Ice Maid Division; J. S. Gog, treasurer; J. T. Cowley, chief engineer; W. O. Hildreth, refrigeration engineer; S. W. Pierce, purchasing agent.

Lindsay, Hyde & Co., 2130 E. York St., Philadelphia, Pa. Manufacturers of LIHYCO electric refrigerators for household use; tubing. Wm. Geible, sales manager; Wm. J. Maginnis, chief engineer; John Lindsay, works manager.

Mechana-Kold Corporation, Bay Shore, N. Y. Manufacturers of electrical household ice machines.

The Merchant & Evans Co., 2035 Washington Ave., Philadelphia, Pa. Factories at Lancaster and Philadelphia, Pa. Manufacturers of M. & E. household and commercial electric refrigerators. Powell Evans, president; Thomas Evans, secretary and general manager; M. P. Stoney, production manager; S. J. Benn, chief refrigeration engineer.

Michigan Refrigeration Co., Inc., 1600 Monroe Ave., Grand Rapids, Mich. Manufacturers of EL-FRIG-ETTE household electric refrigerators. Joseph Renihan, president; V. I. Cilley, secretary-treasurer; M. D. Greene, production manager.

Narragansett Machine Co., Vale St., Pawtucket, R. I. Manufacturers of CHILRITE electric refrigerators for household use. A. J. Thornley, president; Albert E. Thornley, vice-president; C. A. Bryant, advertising manager.

National Refrigerating Co., branch of Winchester Repeating Arms Co., 125 Munson St., New Haven, Conn. Manufacturers of ICE-O-LATOR household and commercial electric (and gas operated) refrigerators.

W. A. Tobler, president; E. S. Ensign, vice-president; L. H. Thompson, treasurer (acting sales manager); G. W. Keller, assistant sales manager.

Plymouth Refrigerator Company, Inc., Ellwood City, Pa.

Manufacturers of Plympton refrigerators, display counters, coolers and circulating systems for any refrigerating unit.

Cabinet sales handled by Plympton Sales Co., 604 Chamber of Commerce Building, Pittsburgh, Pa. Circulating system sales handled by factory at Ellwood City, Pa. T. A. Daley, president; H. B. Beighley, secretary-treasurer and general manager; W. T. Gilpin, sales manager; W. B. Dolan and D. C. Hamilton, assistant sales managers; R. A. Plympton, factory superintendent; William Plympton and Donald Plympton, refrigeration engineers.

Polaraire Electric Refrigerator Co., 1610 North St., Philadelphia, Pa. Manufacturers of POLAIRE household electric refrigerators, commercial machines, motors for household and commercial machines, tubing, condensers and expanders, other control devices, pressure controls. L. V. Gillian, president; F. N. Miner, vice-president; R. M. Cook, secretary-treasurer; Chas. J. H. Freeth, sales manager; Joseph Roman, service manager.

Polaris Electric Refrigerator Co., 417 First St., Logansport, Ind. Manufacturers of POLARIS electric refrigeration machines for household and commercial use; electric refrigeration equipment for ice cream and soda fountain use. C. H. Canode, president; J. F. McManus, vice-president; C. C. Darnall, vice-president and general manager; C. W. Church, secretary; H. A. Kraut, treasurer; W. P. Arthur, sales manager; John Dubrovich, chief engineer; G. V. Morse, production manager.

Rice Products, Inc., 100 East 42nd St., New York City, and 315 Beaubien St., Detroit, Mich. Manufacturers of RICE household and commercial refrigerator units and other control devices. I. L. Rice, Jr., president; T. E. Carpenter, vice-president and general manager; Julian Rice, secretary; James H. Frazier, advertising manager; Frank R. West, chief engineer.

Sanat Refrigerating Co., 831 Madison Ave., New York, N. Y. Factories at York, Pa. Manufacturers of SANAT household electric refrigeration units.

Paul H. Burch, president; John E. Ericson, first vice-president; Howard M. Groff, secretary and treasurer; Paul H. Buch, general manager; John E. Ericson, production manager; John F. Coulthurst, service manager.

Sanitary Refrigerator Co., Oak Place, Fond du Lac, Wis.

Manufacturers of SANITARY electric refrigerators for household use.

Savage Arms Corp., Turner St., Utica, N. Y. Manufacturers of SAVAGE electric refrigerator equipment for ice cream and soda fountain use. W. L. Wright, president; F. R. Phillips, vice-president; J. H. Cook, secretary; E. A. MacDonald, treasurer; F. F. Hickey, general manager; C. A. Baldwin, manager refrigerator division; R. B. Woolley, advertising manager; J. H. Cook, purchasing agent; F. T. Russell, works manager; W. L. Howlett, service manager; R. W. Ayres, chief engineer refrigeration department.

Servel Corporation, 51 East 2nd St., New York, N. Y. Subsidiary of the Servel Corp. (Delaware). Sales and advertising offices and factory at Evansville, Ind.

Manufacturers of SERVEL household electric refrigerators and electric refrigeration units for commercial ice cream and soda fountain use. Frank E. Smith, president; H. P. Childs, vice-president and sales manager; F. S. Fenton, Jr., assistant sales manager; H. W. Foulds, advertising manager; F. P. Nehrbas, factory manager; C. A. Miller, service manager.

Socold Refrigerating Corp., 19 Stewart St., Lynn, Mass. Factories at Lynn and Walpole, Mass. Manufacturers of SOCOLD household electric refrigerators, pumps and compressors.

Louis M. Atherton, president; Arthur F. Bent, vice-president; Charles H. Nevons, secretary and treasurer; Roy H. Booth, sales and advertising manager; Clem M. Batchelder, purchasing agent; Arthur C. MacIntosh, chief engineer; Clifford E. Porter, service manager; Henry E. Ferris, works manager.

Superior Iceless Refrigerator, Inc., Canton, O. Manufacturers of SUPERIOR household, commercial, ice cream and soda fountain electric refrigerators, complete, water coolers, pumps and compressors, condensers and expanders. Chas. A. Kolp, president; Edward L. Frantz, executive vice-president; E. E. Quirk, secretary; Frank Zink, treasurer; W. F. Marr, sales manager; C. E. Yates, sales engineer; George Lee Miller, works manager; J. E. Massey, production manager.

The Triumph Ice Machine Co., branch of The Triumph Electric Corp., 110 E. 70th St., Cincinnati, Ohio. Manufacturers of TRIUMPH household, ice cream and soda fountain electric refrigerating machines, water coolers; motors for commercial machines; pumps and compressors; condensers and expanders; oil interceptors; ammonia condensers; receivers; brine coolers and ammonia fitting.

J. C. Hobart, president; E. W. Hobart, secretary; G. P. Hunt, treasurer; J. C. Hobart, M. L. Block, purchasing agent; J. O. Schultz, general manager; J. O. Schultz, sales manager; chief engineer; J. L. McClure, works manager.

Ward Electric Refrigerator Corp., Buchanan, Mich. Manufacturers of WARD household and commercial units and cabinets, pumps and compressors.

L. W. Ward, president; Miles Ayrault, vice-president; H. B. Hutchings, secretary-treasurer; A. Humason, sales manager; E. W. Esman, sales promotion manager; D. B. Church, purchasing agent; Miles Ayrault, engineer; H. Schneckenberger, service manager; M. Clay, factory manager.

REFRIGERATION STAMPINGS

We Specialize in the Design and Manufacture of

ICE CREAM CABINETS

We make them complete or furnish parts separately

Brine Tanks - Cooling Units

Unit Supporting Bases and Perforated Metal Covers

METAL HOUSEHOLD REFRIGERATORS (Complete) OR CAN FURNISH

OUTSIDE STEEL PANELS, INSIDE LININGS, LOUVERED PANELS,

LEGS, ETC., SEPARATELY

We Have a Competent Engineering Staff to Help You

We Solicit Your Inquiries and Specifications

MOTORS METAL MFG. CO. - DETROIT MICHIGAN

In the Imperial Valley.....

Electro-Kold, the simplest electric refrigerator has made good in the Imperial Valley of California. The Electro-Kold Corporation, Spokane, Wash. U. S. A.

ELECTRO-KOLD

The Simplest Electric Refrigerator

Trade Mark Reg. U.S. Pat. Off.

Home Office and Factory: SPOKANE, WASHINGTON

Electric Refrigeration Directory Section 2

Manufacturers of Electric Refrigeration Cabinets

Benjamin Electric Mfg. Co., 128 S. Sangamon St., Chicago, Ill. Factory at Desplaines, Ill.

Manufacturers of CRYSTEEL cabinets for household and commercial electric refrigerators; enameling; refrigerator linings; seamless, porcelain enameled.

R. B. Benjamin, president; J. H. Fall, Jr., vice-president and treasurer; W. D. Steele, vice-president and secretary; P. H. Powers, sales manager; E. A. Drake, works manager; E. D. Pellegrin, engineer refrigeration department.

Bohn Refrigerator Company, 1350 University Ave., St. Paul, Minn.

Manufacturers of BOHN SYPHON cabinets for household electric refrigerators.

G. C. Bohn, president; George von Nieda, vice-president; Harold H. Bohn, advertising executive; R. H. Ames, secretary and treasurer.

Crystal Refrigerator Co., Fremont, Neb.

Manufacturers of CRYSTAL and WHITE-STEEL household and commercial cabinets.

Frank Hammond, president; Earl R. Hammond, secretary; R. E. Hammond, treasurer.

Bernard Gloekler Co., 1627-33 Penn Ave., Pittsburgh, Pa.

Manufacturers of GLOEKLER cabinets for household and commercial electric refrigeration, and of commercial display cases.

J. Edward Gloekler, president and treasurer; Karl J. Gloekler, vice-president and secretary; J. B. Rodgers, advertising manager; Joseph F. Kriss, purchasing agent; and H. W. Lindsay, chief engineer.

Heintz Manufacturing Co., Front and Olney Sts., Philadelphia, Pa.

Manufacturers of STEEL PREST household and commercial electric refrigerator cabinets and steel stampings.

L. I. Heintz, president; R. P. Farrington, vice-president and treasurer; F. W. Thacher, vice-president; A. L. Lambert, secretary; W. J. Bryan, sales manager; J. J. Frechter, works manager; W. C. DeMaris, office manager.

Herrick Refrigerator & Cold Storage Co., Commercial Street, Waterloo, Iowa.

Manufacturers of HERRICK household and commercial refrigerators, cabinets for electric refrigeration and water cooling refrigerators.

Nathan Northey, president; Edward N. Northey, vice-president; H. G. Northey, secretary; W. E. Ogle, treasurer; C. A. LaBarre, factory superintendent.

Illinois Refrigerator Co., Morrison, Ill.

Manufacturers of household and commercial electric refrigerator cabinets.

Edward A. Smith, president; F. L. Smith, vice-president and general manager; Harry L. Kirberg, treasurer; Humphrey T. Rendall, secretary; Arthur J. Freer, sales manager.

Jewett Refrigerator Co., 2 Letchworth St., Buffalo, N. Y. Factories at Buffalo, Lackawanna, Bridgeburg, Can.

Manufacturers of JEWETT cabinets for household and commercial electric refrigerators; water coolers and ice makers.

E. B. Jewett, president and general manager; C. D. Wheeler, vice-president and sales manager; R. Jewett, vice-president; H. J. Hedrick, vice-president; B. A. Simon, purchasing agent; R. C. Calkins, works manager.

McCray Refrigerator Sales Corp., Kendallville, Indiana.

Manufacturers of McCRAY household and commercial electric refrigerator cabinets.

E. E. McCray, president; H. McCray, vice-president; J. W. Hart, secretary; R. E. Davis, treasurer; H. M. Stewart (vice-president), general manager; R. J. Rehwinkel, advertising manager; R. J. Misselhorn, southern sales manager; M. A. Drumheller, western sales manager; H. E. Culbertson, central sales manager; H. R. Hawkins, eastern sales manager; W. V. Herr, manager collection department; N. A. Lindvall, special follow-up department manager; G. R. Bangs, branch auditor.

Northey Manufacturing Co., Park Ave. and Bluff St., Waterloo, Iowa.

Manufacturers of NORTHEY household and commercial electric refrigerator cabinets and water coolers.

F. L. Northey, president; Hugh McCartney, general sales manager; A. Snodgrass, factory superintendent.

Rex Manufacturing Co., Western Ave., Connersville, Ind.

Manufacturers of REX household and commercial electric refrigerator cabinets.

Charles C. Hull, president; M. Lair Hull, vice-president; James H. Heron, secretary-treasurer; Raymond H. Crawford, sales manager; Jos. T. McKinney, advertising manager; Edgar Myers, sales promotion manager; W. O. Hull, purchasing agent; M. R. Hull, factory manager.

Rhineland Refrigerator Company, Rhineland, Wis.

Manufacturers of AIRTITE cabinets for household and commercial electric refrigerators. R. A. Riek, general manager.

Seeger Refrigerator Company, Arcade-Wells Sts., St. Paul, Minn.

Manufacturers of SEEGER electric refrigerator cabinets for household and commercial use.

John A. Seeger, president; Walter G. Seeger, vice-president; G. R. Seeger, secretary-treasurer; John J. Leonard, sales manager; W. G. Seeger, advertising manager; R. S. Ahrens, chief engineer; G. R. Seeger, works manager; T. LaVelle, works manager; R. A. Carlton, service manager.



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J. L. Gillard, general manager.

All Sheet Metal Works, 2940 Elston Ave., Chicago, Ill.

Manufacturers of household, commercial, ice cream and soda fountain electric refrigerator cabinets; water coolers; combination ice cream cabinet and bottle cooler; other special applications; brine tanks and bunkers.

F. J. Wanbach, president; L. C. Campbell, secretary and treasurer.

Arlington Refrigerator Co., Inc., Arlington, Vermont.

Manufacturers of ARLINGTON, ARCO and ARCOSTONE household electric refrigerator cabinets.

John P. Munn, M. D., president; C. M. Rochester, treasurer; A. M. Johnston, secretary and manager; A. M. Johnston, general manager; F. E. Merrill, sales manager; R. R. Casey, factory manager.

The Baldwin Refrigerator Co., Burlington, Vt.

Manufacturers of refrigerator cabinets.

George A. Hall, president; Ernest E. Smith, secretary and manager; H. T. Rutter, treasurer.

Banta Refrigerator Company, Clearfield, Pa.

Manufacturers of BANTA commercial cabinets.

L. A. Banta, president; W. A. Walker, vice-president; J. Lewis Irvin, secretary; F. B. Kerr, treasurer; W. H. Walker, general manager; W. B. McBride, purchasing agent; G. F. Banta, superintendent.

Brooks Cabinet Co., Inc., 1028 West 27th St., Norfolk, Va.

Manufacturers of BROOKS CABINETS for household, commercial, ice cream and soda fountain electric refrigerators; water coolers.

C. H. Brooks, president; C. T. Brooks, vice-president; J. N. Taylor, sec. treas.

Campbell-Shirk Co., 3200-10 Auer Ave., Milwaukee, Wis.

Manufacturers of cabinets for commercial electric refrigerators.

J. W. Campbell, president; R. F. Campbell, vice-president and treasurer; Earl Shirk, secretary; R. F. Campbell, general manager; Harry Buehler, factory manager.

Challenge Refrigerator Co., Grand Haven, Mich.

Manufacturers of CHALLENGE cabinets for household electric refrigerators.

H. F. Harbeck, president; W. H. Harbeck, vice-president; B. F. Harbeck, secretary-treasurer.

Erie Art Metal Co., Erie, Pa.

Manufacturers of Dan-Dee pressed steel specialties and of mechanical refrigeration cabinets.

W. H. Knobloch, president and general manager; A. F. Schabacker, vice-president; E. Bauschard, secretary and treasurer.

Fairfield Mfg. Co., 82-106 St. John St., Portland, Me.

Factories at Portland and Fairfield.

Manufacturers of EVEROLD household and commercial electric refrigerator cabinets.

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Garland Refrigerator Co., Inc., 101 Park Ave., New York, N. Y.

Factory at Mt. Vernon, N. Y.

Manufacturers of GARLAND commercial electric refrigerator cabinets.

M. L. Garland, president; B. F. Garland, treasurer; C. F. Garland, secretary.

Gibson Refrigerator Company, 515 W. Williams St., Greenville, Mich.

Manufacturers of GIBSON cabinets for household and commercial electric refrigerators.

John J. Grothe Co., Inc., 5-7 Conn Ave., Zero Bldg., Woburn, Mass.

Manufacturers of ZERO cabinets for electric refrigerators for commercial and ice cream and soda fountain use; water coolers; mechanical refrigerated truck bodies; special cabinets and storage rooms.

James A. Houston, president; Arthur B. Mackay, vice-president; John E. Burke, secretary and treasurer; A. B. Mackay, general manager; Joseph Robbins, factory and service manager.

Gurney Refrigerator Co., Fond du Lac, Wis.

Manufacturers of cabinets for household and commercial electric refrigerators; also of cabinets for ice cream and soda fountain use.

E. G. Vail, president and treasurer; A. D. Thomson, vice-president; F. A. Foster, secretary; Nicholas Welling, chief engineer; and C. M. Nelson, general superintendent.

Harder Refrigerator Corp., Cobleskill, N. Y.

Manufacturers of KLEEN-KOLD electric refrigerator cabinets.

E. S. Ryder, president; F. H. Ryder, vice-president; G. D. Ryder, secretary-treasurer; F. H. Ryder, general manager; H. L. Merrill, sales manager; G. D. Ryder, advertising manager; E. C. Allen, purchasing agent; A. W. Rowley, chief engineer; G. J. Hopkins, works manager.

Haskelite Manufacturing Corp., 133 W. Washington St., Suite 819, Chicago, Ill.

Factory at Grand Rapids, Mich.

Manufacturers of PLYMETL AIR-TIGHT household and commercial cabinets and water coolers.

George R. Meyer, president; James R. Fitzpatrick, secretary; Olin H. Basquin, chief engineer; Frank M. Curran, factory manager.

The Hibbard Company, 6504 Euclid Ave., Cleveland, Ohio.

Factory at Parma, Ohio.

Manufacturers of cabinets for household and commercial electric refrigerators; beverage cabinets; UTILITY refrigerators.

H. W. Hibbard, president; I. B. Hibbard, secretary.

The Home Products Corp., Jackson, Michigan.

Manufacturers of WHITE FROST and CASTLE household electric refrigerator cabinets.

George H. Hannum, president; H. C. Castle, vice-president; C. B. Castle, secretary-treasurer and general manager; H. A. Matthews, sales manager; G. C. Christmas, purchasing agent.

J. T. Manufacturing Co., 666 Lake Shore Drive, Chicago, Ill.

Factory at Nashville, Tenn.

Manufacturers of cabinets for household electric refrigerators.

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Leonard Refrigerator Company, Grand Rapids, Mich.

Subsidiary of the Electric Refrigeration Corp.

Manufacturers of LEONARD CLEANABLE cabinets for household and commercial electric refrigerators.

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Louisville Refrigerator Corporation, 4460 Louisville Ave., Louisville, Ky.

Factory located at Highland Park, Ky.

Manufacturers of WHITE SEAL cabinets for household electric refrigerators.

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Manufacturers of MACE household electric refrigerator cabinets.

Samuel Steinfeld, president; Lew Hutzler, treasurer; Wm. Lurie, secretary; Ralph Redell, general manager.

Metz Products Corp., 3051 Rosslyn St., Los Angeles, Calif.

Manufacturers of METZ SUPERINSULATED cabinets for household electric refrigerators.

Walter Metz, president; Edwin H. Metz, secretary-treasurer.

Ottenheimer Bros., Inc., Fallway and Hillen Sts., Baltimore, Md.

Manufacturers of OREOLE cabinets for household and commercial electric refrigerators; illuminated and non-illuminated refrigerator display cases.

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Progress Refrigerator Co., branch of Louisville Tin & Stove Co., 621 W. Main St., Louisville, Ky.

Manufacturers of PROGRESS electric refrigerator cabinets.

W. L. Hollis, president; C. C. Cloud, vice-

president; C. V. Edmonds, secretary-treasurer.

Reol Refrigerator Co., Hillen and Front Sts., Baltimore, Md.

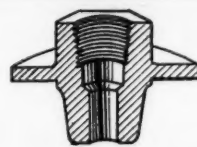
Subsidiary of Ottenheimer Bros., Inc.

Manufacturers of REOL cabinets for household and commercial electric refrigerators; illuminated refrigerator display cases.

Valerius Refrigeration Corp., Jefferson, Wis.

Manufacturers of ICE-O-MATIC soda fountain cabinets, luncheonettes and commissary refrigerators.

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American Radiator Company, 816 South Michigan Avenue, Chicago, Ill.
Industrial Division—Factories at Springfield, Ill., and Detroit, Mich.
Manufacturers of cast iron cooling units, float valves, automatic expansion valves, and job foundry work of all kinds for the refrigerating industry.
Accessories Division—Factory at Detroit, Mich.
Manufacturers of MERCOID controls for domestic refrigeration.

Atlas Plywood Corp., 934 Park Square Bldg., Boston, Mass. Factories at Stockholm, Me., Greenville, Md., Richford, Vt., Montgomery Center, Vt., Morrisville, Vt.

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Manufacturers of COOKE Seal Rings.

Cork Import Corp., 345 W. 40th St., New York, N. Y. Factories at Port Newark, N. J., Palafrugell, Spain, Palamos, Spain.

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Electrical Testing Laboratories, 80th St. and East End Ave., New York, N. Y.
John W. Lieb, president; C. H. Sharp, Ph.D., vice-president and technical director; Preston S. Millar, general manager; F. Malcolm Farmer, M. E., chief engineer; Norman D. MacDonald, sales manager.

Fedders Mfg. Co., Buffalo, N. Y.
Manufacturers of water coolers; other special applications; tubing; condensers and expanders; thermostats; float valves and other control devices; brine tanks; freezing units; expansion valves; liquid receivers; filters; strainers; trays and grids.

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R. A. Weaver, president.

Flintlock Corp., 4461 Jefferson Ave. W., Detroit, Mich.
Manufacturers of FLINTLOCK condensers and expanders.
C. H. L. Flintermann, president; John Karmazin, vice-president; Elis L. Larson, sales manager.

Goodnow & Blake Mfg. Co., 3840 Beaver St., Detroit, Mich.
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J. F. McNamara, salesmanager Monel Metal and Roller Nickel Department.

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McCord Radiator & Mfg. Co., East Grand Blvd. and Riopelle St., Detroit, Mich. Factories at Detroit, Plymouth, Ind., and Walkerville, Ont.
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Motors Metal & Mfg. Co., 5963 Milford Avenue, Detroit, Michigan.
Manufacturers of metal household and commercial refrigerators, ice cream cabinets, brine tanks, cooling units, inside linings, louvered panels, perforated metal covers and unit supporting bases.

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Penn Electric Switch Co., 306 Twelfth St., Des Moines, Iowa.
Manufacturers of thermostats and other control devices, high and low pressure safety switches, pressure-vacuum operated control switches.
Albert Penn, general manager and sales manager; Ralph Penn, advertising manager; M. D. Disosway, factory manager.

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Manufacturers of HELICALFIN condenser tubes, refrigeration condensers, stampings of copper and brass, trays, grids, liquid receivers, brine tanks, etc.
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Manufacturers of EXCELSIOR household and commercial electric refrigerator units, pumps and compressors, control devices, drop-forged flanged valves and fittings for ammonia service.
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Federal Asbestos & Cork Insulation Co., 931 30th St., Milwaukee, Wis.
Manufacturers of FEDERAL cabinets for household and commercial electric refrigerators.
Charles Dieringer, president.

Federal Gauge Co., 564 W. Adams St., Chicago, Ill.

Manufacturers of thermostats and other control devices.
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Fidelity Electric Co., 331 N. Arch St., Lancaster, Pa.

Manufacturers of FIDELITY motors for household and commercial electric refrigeration machines.

Kulair Corp., Industrial Bldg., Preston St. and Brentwood Ave., Baltimore, Md.
Manufacturers of condensers and expanders, and thermostats.

Phillips F. Lee, president; W. W. Moss, vice-president and treasurer; Frank C. Brady, secretary; G. W. Gail, engineer.

Marathon Electric Mfg. Co., Wausau, Wis.

Manufacturers of MARATHO "OK" motors for electric refrigerators.
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Dunning Pump & Manufacturing Company, 326 Walnut Street, Philadelphia, Pa.

Manufacturers of DUNNING electric refrigerating machines for household and commercial use, pumps and compressors, float valves, evaporators, and machine bases.
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Manufacturers of tubing.
O. B. Mueller, president and general manager; F. L. Riggins, secretary and sales manager; R. W. Peden, treasurer; Robert Mueller, vice-president (Decatur, Ill.); Reuben Levine, advertising manager; H. A. McDermott, purchasing agent; C. A. Hill, chief engineer; D. E. Lindquist, superintendent.

The National Cooper & Smelting Co., 12120 Euclid Ave., Cleveland, Ohio. Factory at 1893 Colman Road, Cleveland.

Manufacturers of brass and copper seamless tubing.
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The Ohio Electric and Controller Co., 5900 Maurice Ave., Cleveland, Ohio.

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The Stanley Knight Co., 216 West Superior Street, Chicago, Ill.

Manufacturers of electrically refrigerated soda fountains and accessories.
Stanley H. Knight, president; Leslie Arnett, sales manager.

Stow Mfg. Co., Inc., 443 State St., Binghamton, N. Y.

Manufacturers of motors for commercial electric refrigerator machines, grinders for interior cabinet work, grinders for lap and electric wells.
C. F. Hotchkiss, president; D. Walker Wear, vice-president and treasurer; C. E. Hotchkiss, Secretary; D. Walker Wear, general manager; Jas. P. Dickinson, factory manager.

C. J. Tagliabue Manufacturing Company, 18 to 88 Third Street, Brooklyn, N. Y. Factories at Brooklyn, N. Y., and Cleveland, Ohio.

Manufacturers of SNAPON automatic controller for refrigerators, thermostats, and other control devices; recording, dial, industrial, and laboratory types of thermometer; air-operated, self-operated, electric contact and other types of

automatic controllers; gas analysis recorders, oil testing instruments, and safety shut-off valves.
Cary D. Waters, president; Lawrence C. Irwin, vice-president and general manager; Miss E. C. Boetticher, secretary-treasurer; Harvey D. Cooke, sales manager; Manoel F. Behar, advertising manager and sales promotion manager; Henry J. Nichols, purchasing agent; Victor Wichum, chief engineer; H. A. Birdsall, works manager; and Henry Hall, factory manager.

United Cork Companies, Grant Ave., Lyndhurst, N. J.

Manufacturers of CRESCENT corkboard insulation.
Edward Bose, president; Edwin J. Ward, secretary; Peter Binzel, Jr., treasurer; L. T. Sibley, sales promotion manager; Q. J. Schwarz, superintendent.

Wagner Electric Corp., 6400 Plymouth Ave., St. Louis, Mo.

Manufacturers of motors for household and commercial electric refrigerators.

P. B. Postlethwaite, president; A. H. Timmerman, vice-president; G. L. Evans, vice-president; J. W. Wescott, secretary; V. W. Bergenthal, treasurer; E. H. Cheney, sales manager; E. A. Forkner, small motor sales manager; J. B. Eby, purchasing agent; G. A. Water, chief engineer; G. B. Evans, general superintendent; J. H. Devor, service manager.

Western Automatic Machine Screw Co., Elyria, Ohio.

Manufacturers of screw machine products for use in the manufacture and assembly of electric refrigerators, standard cap and set screws, semi-finished nuts, studs and taper pins.

B. C. Franklin, vice-president and general manager; F. H. Bryant, secretary; C. H. Smith, treasurer; R. D. Oldfield, sales manager; F. H. Bryant, purchasing agent.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Manufacturers of motors for commercial machines.
C. D. Kester, Synchronous motor section, motor apparatus sales.

Wolfe Engineering and Mfg. Co., 1408 Vernon St., Harrisburg, Pa.

Manufacturers of compressors and electric refrigeration equipment.
F. S. Wolfe, president.

E. T. L. Service for Domestic and Commercial Electric Refrigeration

Testing and experimental laboratory service for manufacturer, distributor, central station
Test data exclusive property of client

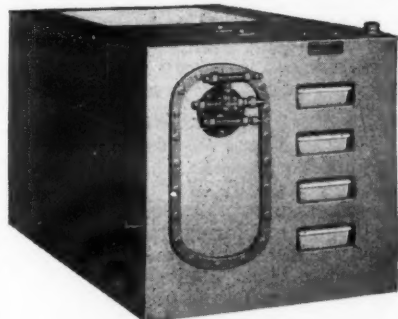
ELECTRICAL TESTING LABORATORIES
80th Street and East End Avenue, NEW YORK CITY, N. Y.

ROME CONDENSERS

are formed in any shape of one piece of seamless copper tubing, fitted with heavy gauge copper radiating fin.
Rome condensers are five times as efficient as plain tubes.



ROME-TURNEY RADIATOR CO. ROME, N. Y.



WILDER METAL
Sheets Have Stood
the Rigid Test of Over
Four Years' Use in
Brine Tanks

Prompt shipment of standard gauges and sizes from warehouse stock

Kelvinator-Nizer standard Commercial Freezing Tanks Constructed from Wilder Metal

SAMPLES FURNISHED ON REQUEST

WILDER METAL CO.
NILES, OHIO

PIPE and TUBE FITTINGS



Made From Brass Rod, Castings or Forgings

For many years we have specialized in the manufacture of brass fittings, in small sizes, for connecting brass and copper tubing.

In addition to fittings made from brass rod and castings, we are now producing similar parts made from BRASS FORGINGS to meet the requirements of Iceless Refrigerator Manufacturers for fittings of a superior type. These fittings will not leak gas, air or liquids under mechanical pressure. They have the compact grain structure, high tensile strength and smooth, flawless surfaces found only in forgings. Our forged fittings are accurately machined, carefully inspected and equal to the most exacting requirements.

Send a sample or blue-print for quotations on parts of a special nature. Catalogue No. R-30, showing our complete line of standard fittings will be mailed on request.



COMMONWEALTH BRASS CORPORATION
DETROIT 5781-5835 COMMONWEALTH AVE. MICH.

REQUESTS FOR INFORMATION

The following inquiries have been received by ELECTRIC REFRIGERATION NEWS. Readers who can supply information on these subjects are invited to write at once, referring to the Query number.

Query 28—"Kindly send me list of manufacturers of sulphur dioxide ice machines for household use, and also list of companies that manufacture parts."

Query 29—"Will you please give us the names of any refrigerator manufacturers making a cabinet for dairy purposes. We refer particularly to one that is made to accommodate the regular dairy cases."

Query 30—"Will you kindly advise us as to who is manufacturing the one-piece sheet steel interiors for household refrigerators?"

Query 31—"Will you please advise me as to where I can secure any publications dealing with the design, construction, and operation of small electric refrigerating machines similar to those used for household work?"

Query 32—"Will you please give us information about manufacturers of motor trucks with bodies adaptable for electric refrigeration equipment, and also about electric refrigeration equipment adaptable to mounting on a motor truck?"

NEW BOOKLET AND LEAFLETS

Winters & Crampton

Winters & Crampton Mfg. Co., Grand Rapids, Mich., have issued a twenty-four page catalogue of refrigerator hardware, including locks, fasteners and hinges. Complete specifications are given with each illustration, and mechanical construction is explained.

Nela-Graph

The July number of Nela-Graph of the Southeastern Headquarters, National Electric Light Association, issued at 402 Wynne-Claughton Building, Atlanta, Ga., has been received. Its combination of serious matter, illustration, and clever material makes it an unusual publication of its kind.

Ice Cubes

Several issue of Ice Cubes, house organ of Copeland Sales Company, Detroit, have been received. Ice Cubes is published monthly, devoting its pages to news events in the selling of Copeland electric refrigeration, illustrations of individuals, groups, salesrooms, signs, advertisements, new models and the like.

General Electric

General Electric Co., Schenectady, N. Y., has published leaflets dealing with semi-automatic reduced voltage starters for synchronous motors and with an across-the-line starter for single-phase and three-phase induction motors. Illustrations, detailed descriptions, and specifications are given.

Northey

Northey Manufacturing Co., Waterloo, Iowa, has published a 68-page catalogue, picturing in color refrigerators, display cases, cooling rooms, and other products of the company. General information and descriptions are supplemented with specifications and detail concerning illustrations.

Electro-Kold

Electro-Kold Corporation has published a four-page folder illustrated with cuts of homes in which this form of electric refrigeration has been installed and with those showing different units manufactured. It is used by dealers, one page of the folder being devoted to a letter addressed to "Mrs. Henry Housewife."

Mueller

The June-July issue of Mueller Brass Craftsman has been received. It is published by the Mueller Brass Co. of Port Huron, Mich., for employees and customers, combining news of the products of the company with items concerning employees, department and company organizations.

Dry-Zero

Dry-Zero Corporation, 130 North Wells Street, Chicago, Ill., has recently published three booklets dealing with insulation. The first explains the origin of Dry-Zero, the blanket and pliable slab insulant made by this company, and tells of its commercial development. The second, which was written by Harvey B. Lindsay, deals with the theory of specific surface resistances, and the third sets forth examples of results of this insulant in use.

Gurney

Gurney Refrigerator Company, Fond du Lac, Wis., has published detailed plans and specifications for installations of their refrigerators. Thirteen cabinets are illustrated, complete dimensions given, and construction explained. The illustrations are on separate sheets of paper, with accompanying sheets showing the designers' drawings. All refrigerators shown in this group are designed especially for electric refrigeration. A booklet, Catalogue 37-A, giving further details of Gurney construction, accompanies the folder.

Penn Switch

Folders have been received illustrating, describing, and giving specifications and prices for Penn Electric Switches, manufactured by Penn Electric Switch Co., Des Moines, Iowa. The folders deal with low water pressure safety switches; high pressure refrigeration safety switches; those for temperature, pressure or vacuum service; contacts used in Penn automatic switches; and patented trip mechanism.

Kelvi-News

Kelvi-News, published "every now and then" by the Southern Public Utilities Co., Greenville, S. C., was recently received. This company has just completed a campaign for the sale of electric ranges, although it has consistently pushed the sale of Kelvinators during the same time. Kelvi-News is a mimeographed sheet, dealing particularly with the news of electric refrigeration as handled by this public utility company.

Norge

Norge Corporation, Detroit, has published a three-color folder illustrating seven models of their line of electric refrigerators. A part of the folder is given to the discussion of the mechanism of the Norge, and seven units with specifications are pictured.

Norge Corporation has also issued recently a twenty-page booklet using full-page illustrations and small drawings, with explanatory material, as well as sales points for electric refrigeration.

Novoid News

Novoid News, publication of the Cork Import Corporation, 345 West 40th St., New York City, for June, 1927, discusses shipping ice-cream from New England to Florida in corkboard-insulated refrigerators and insulation in modern packing plants, including material dealing with the company's product. It is a four-page folder, illustrated.

Hope This Won't Encourage the Crime Wave

An electric refrigerator has been installed in the county jail at West Bend, Wis., by R. A. Vidourek, of Hartford, Wis.

Frigidaire Moves Seattle Headquarters

Seattle headquarters of the Frigidaire Corp. have been moved to the Securities Building where greater floor space has been secured allowing a larger display than was possible in their quarters on Second Avenue.

CLASSIFIED COLUMN

Note: Replies to advertisements with "box numbers" should be addressed to Electric Refrigeration News, 554 Macabees Bldg., Detroit, Michigan.

Advertising rates for this column only: Positions wanted 40 cents per line for one insertion, \$1.00 per line for three insertions. All other classifications, 50 cents per line for one insertion, \$1.25 per line for three insertions.

Junior sales executive, fifteen years experience in selling, conducting intensive sales campaigns, handling salesmen. Two years territory supervisor electrical refrigeration working new dealer connections, contracting with power companies, organizing sales forces. Age 35, college man. Prefer position in west or middle west as branch manager or manufacturer's agent. Box 37.

Refrigerator cabinet specialist, aged 42, married, resident of New York, having served twenty years in executive capacities as Purchasing Agent, Production Manager, General Manager, and higher positions with several large refrigerator factories, owns U. S. patents, trade name and application for new steel refrigerator construction, desires to connect on good salary basis with responsible Eastern concern. Applicant has good knowledge of electric refrigeration. Address Box 43.

Manufacturer of refrigerated display cases and storage boxes wants designer familiar with mechanical refrigeration and preferably with experience in woodworking plant. Give details of experience in your reply. Address Box 44.

\$125,000.00 Company wishes to combine with some responsible manufacturing concern in the Ice Machine line, which has ample factory space, to manufacture machines and accessories of all kinds, from 1/2 to 20 ton capacity. We have had 30 years experience and enjoy the best reputation in the United States, been building machines from 1/2 to 300 tons capacity. Can give good reasons for wanting to leave present location. To any company that will send a practical man to our city, we will guarantee that we can convince him this is a wonderful opportunity and guarantee his trip to be satisfactory. The data, experience and paraphernalia that we have, with which to do business, would be worth several hundred thousand dollars to almost any concern that can handle the proposition. Address Box 45.

Private concern doing \$25,000 per year, would like to get in touch with some one interested in Electric Refrigeration, with a view to extending the business. Marsdens Store Fixture House, James St., East Providence, R. I.

CHIEF ENGINEER AVAILABLE—Long experience with Frigidaire, Servel, Nizer, Copeland and as consulting engineer for other manufacturers of electric refrigerators and related products. Hold valuable patents on controls, seals and other accessories. Want a hard job with problems to solve and with opportunity and authority to accomplish results. Location immaterial. Address Manuel Lassen, 3840 Beaver St., Detroit, Michigan.

Compliments the News

I wish to take this occasion to compliment you in the excellence of the publication which you are putting out. I believe that everyone in connection with the refrigerating business finds a great deal of interest and information in it.—A. M. Taylor, manager of advertising and sales promotion, Copeland Sales Co., Detroit.

IMPORTANT NOTICE

Application is being made to the U. S. Postal Department for second-class mailing privileges. The second-class rate represents a considerable saving in postage cost but the postal regulations affecting this class of service are very strict. With the exception of a limited number of sample copies, the rate applies only to paid subscriptions.

Sample copies have been sent out freely in the past and the application for the second-class privilege has been delayed until everyone known to be interested in electric refrigeration might have an opportunity to become acquainted with the service of the paper.

If you have not already subscribed please do so at once, so that you will receive the paper regularly. Use the coupon.

NORTHEY
REFRIGERATORS
FOR ALL PURPOSES
ANY SIZE, STYLE OR FINISH
NORTHEY MFG. CO.
WATERLOO, IOWA

AGENCIES IN MOST LARGE CITIES

OPPORTUNITY

To buy established concern manufacturing electric refrigerating units for past three years. Several thousand sold. Entire equipment for sale. No real estate. Investigate—Address Box 46, Electric Refrigeration News.

BRINE TANKS—"AIR WAY" CONDENSERS LIQUID FILTERS—EXPANSION VALVES

For Electric Refrigeration—Write Today

Factory Representatives:
F. B. Riley, and Associates
320 Beaubien Street
Detroit, Mich.

Fedders Mfg. Co.

Buffalo
New York

SPECIAL CLUB SUBSCRIPTION OFFER

For a limited time, ELECTRIC REFRIGERATION NEWS is being offered at a special club rate where ten or more subscriptions are sent in at one time. The club rate is only 75 cents per year for each subscription (10 for \$7.50). Papers will be sent to one address or mailed individually as desired.

THERMOSTATS

Automatic Controls for Refrigeration and Oil Burners

SHAFT SEALS—FLOATS
HIGH PRESSURE
CUT-OUTS

LIGHT
STAMPINGS

Engineering Department
at Your Service

GOODNOW & BLAKE MFG. CO.

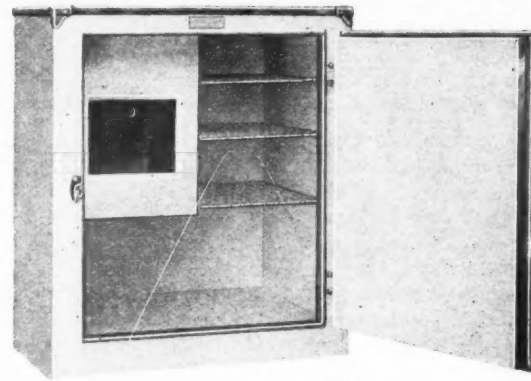
3840 BEAVER STREET
DETROIT, MICH.

Crystal and White Steel

APARTMENT REFRIGERATORS

for Remote Installations

Are going into
apartment homes
all over the
country



No. 652

Electric refrigeration requires an efficient cork-insulated steel refrigerator like the "Crystal" or "White-Steel."

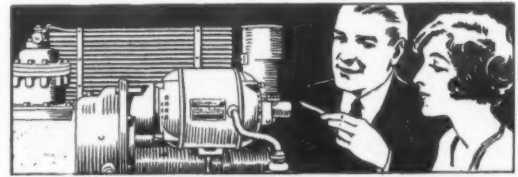
In a recent test of our No. 652 connected with a Universal machine a uniform temperature of 45° was maintained with the outside temperature ranging from 75° to 90° and with machine operating only one-third time.

Sizes up to 20 cu. ft. for self-contained units and remote installations. Write for catalog and prices and sample wall section showing pure cork insulation.

CRYSTAL REFRIGERATOR CO., Fremont, Nebr.
MAKERS OF STEEL REFRIGERATORS SINCE 1910

Recent installations have been made in the following cities:
Atlantic City
Buffalo
Cleveland
Detroit
Columbus
Cincinnati
Chicago
Minneapolis
Tulsa
Omaha
Sioux City
Fargo
Salt Lake City
Idaho Falls
Spokane
Salem, Ore.
Vancouver, B. C.

Big Money In Electric Refrigeration



We Train You at Home

Overnight a billion dollar industry has arisen. Trained men are wanted for installing, servicing and selling Refrigerators. A bigger opportunity than the auto or radio. Own your own shop, get out of doors, meet refined people. Big pay. Are easy to understand, Home Study Course teaches you about every type. Nothing like it. Get in on the ground floor. Write for catalog. Just get the facts. Now's the time!

UTILITIES ENGINEERING SERVICE
EDUCATIONAL DIVISION, DEPT. O.
3120 NORTH CLARK ST., CHICAGO

Subscription Order

BUSINESS NEWS PUBLISHING CO.
554 MACCABEES BLDG.
DETROIT, MICH.

DATE.....

Gentlemen:

Please enter my subscription to ELECTRIC REFRIGERATION NEWS, the Business Newspaper of the Electric Refrigeration Industry.

United States: ☐ \$1.00 per year ☐ Three years for \$2.00.

Foreign Countries: ☐ \$1.50 per year.

I am enclosing payment in the form of

☐ Check ☐ P. O. Order ☐ Cash ☐ Stamps

Name

Company

Street Address

City and State

☐ NOTE: If it is inconvenient for you to enclose payment with this order, check this square and invoice will be mailed. Do it now, while you have the blank before you. It will save the time and trouble of writing a letter and you will be sure to get the next issue.